Job Benefits Roundup: Sure, you've got health insurance, but how about free beer and pet insurance? See Career Watch, PAGE 46

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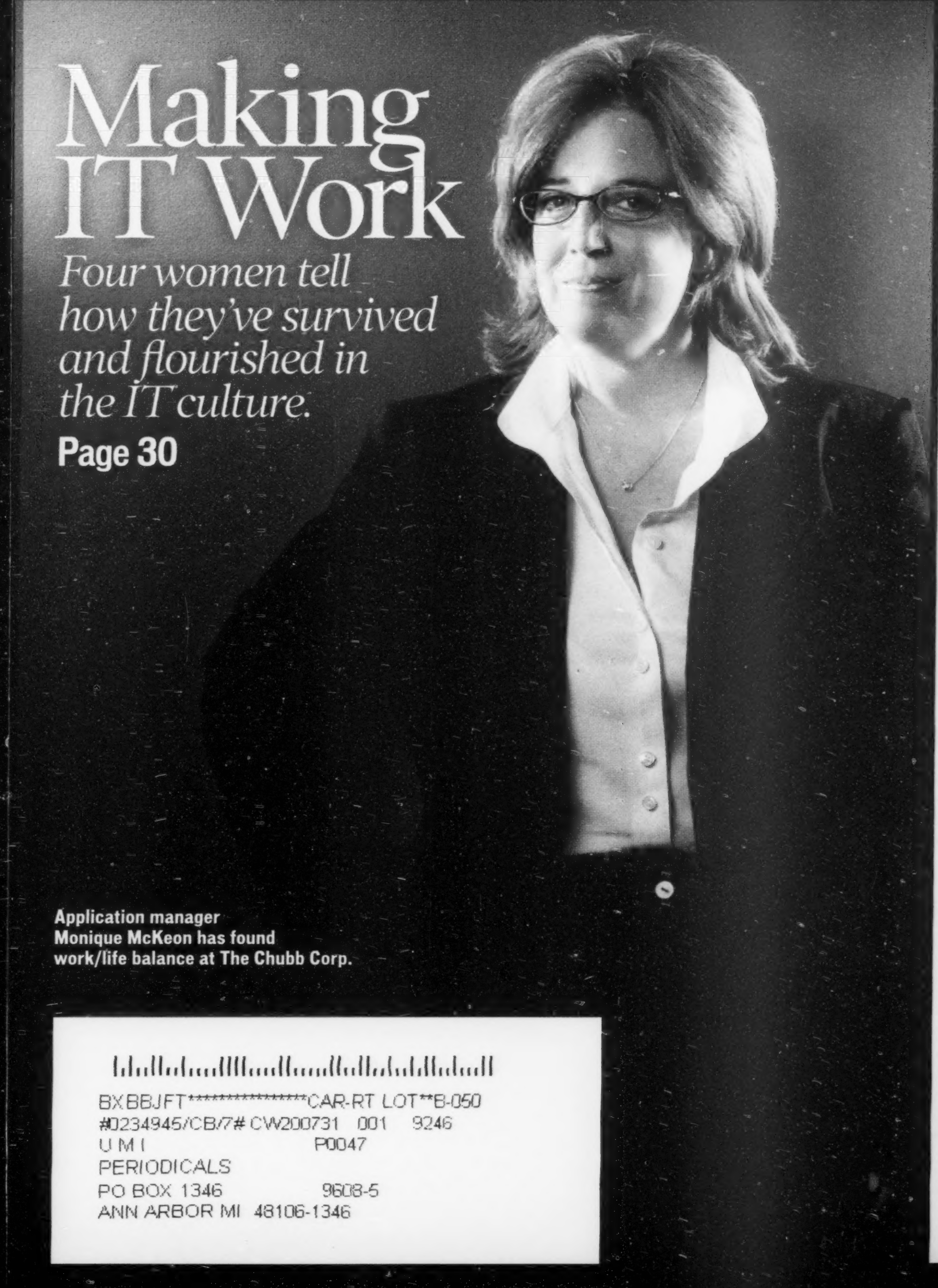

Making IT Work

Four women tell how they've survived and flourished in the IT culture.

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Application manager Monique McKeon has found work/life balance at The Chubb Corp.

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AUGUST 6, 2007
VOL. 41, NO. 32 $5/COPY

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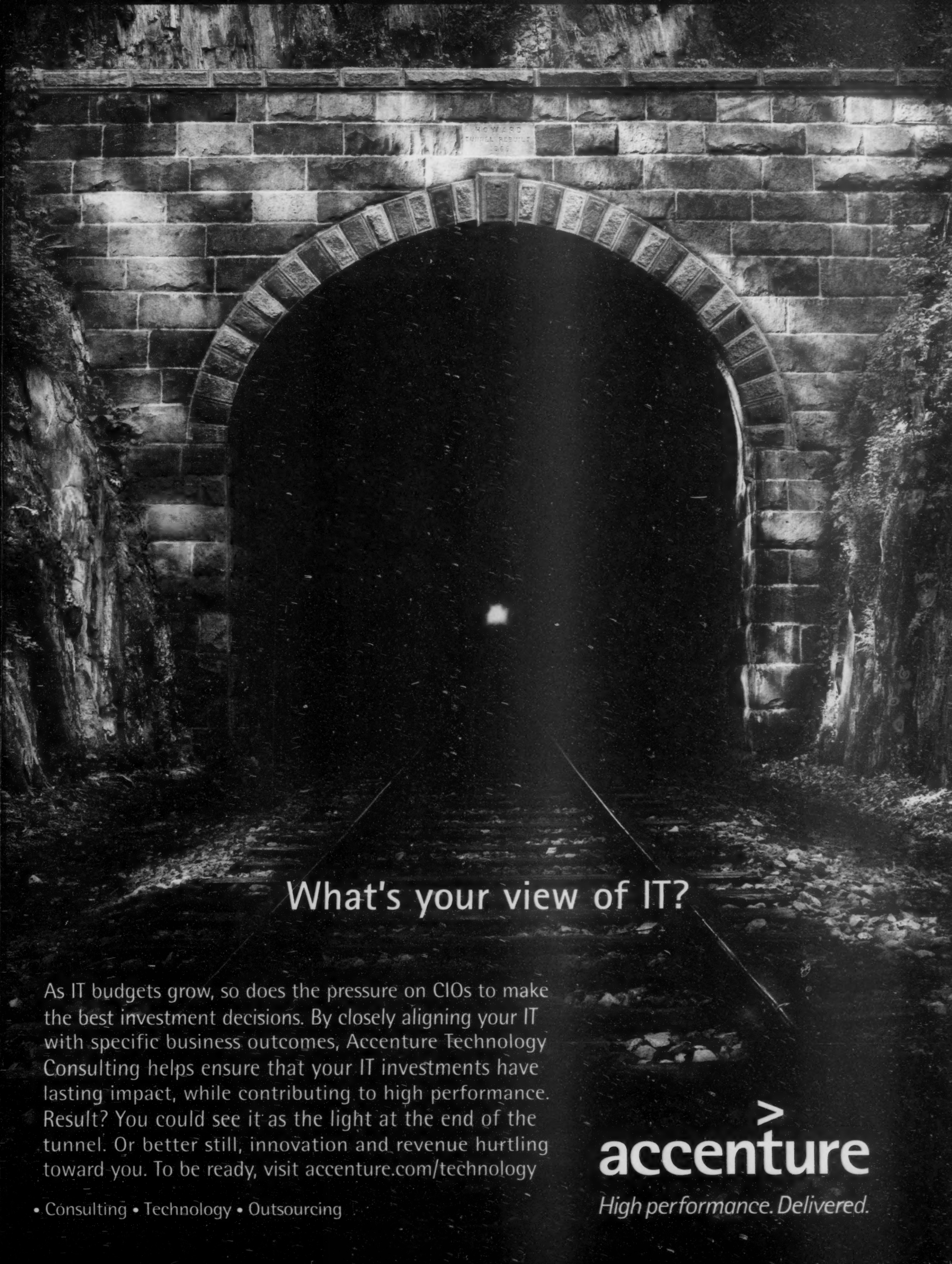

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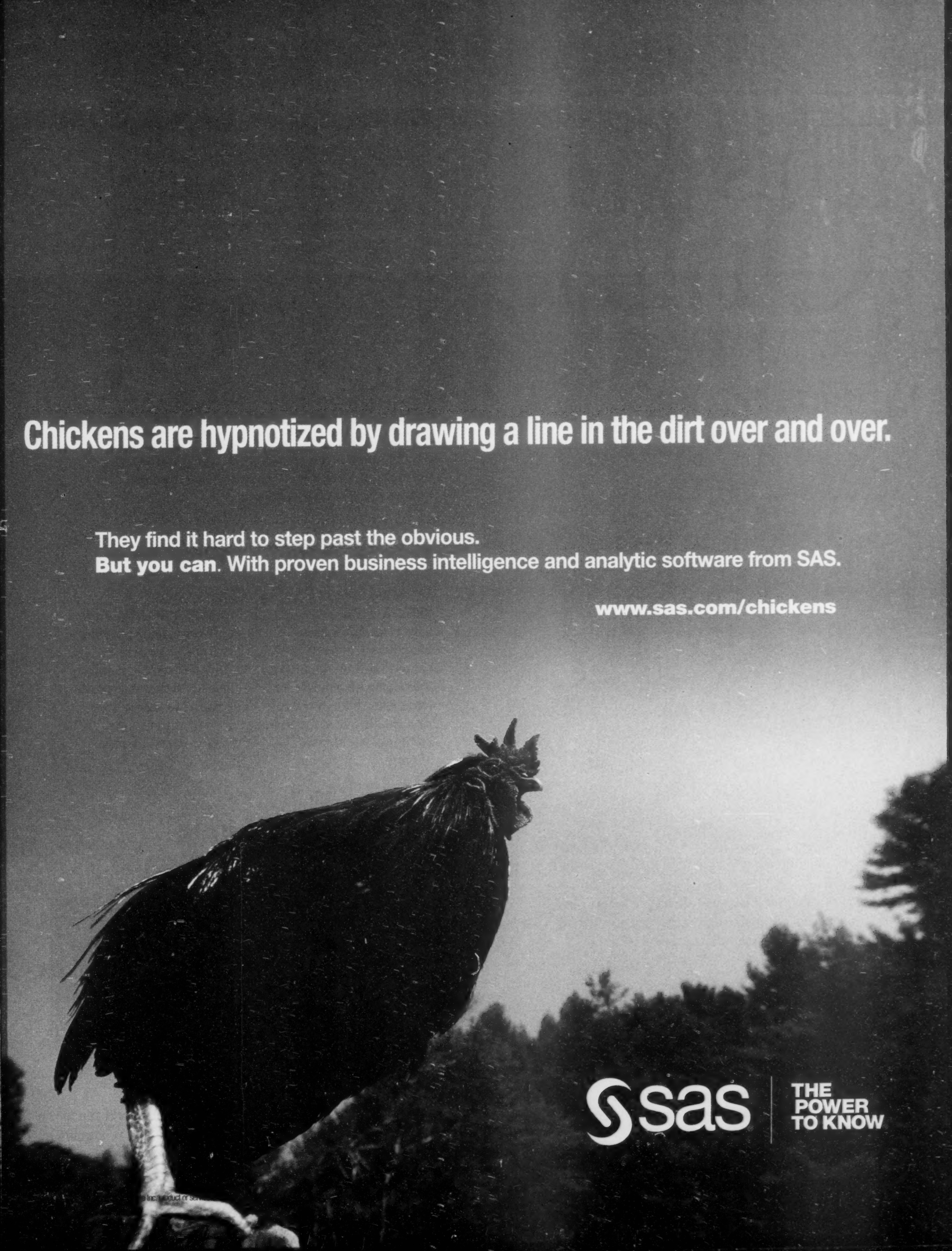
COVER: PHOTO BY PETER MURPHY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This Week Online

Finally, Videoconferencing That Works

NETWORKING: It's still not cheap, but telepresence technology takes videoconferencing a giant step forward. And did we mention that it's really cool?
computerworld.com/networking

Making Sense of AMD's Processor Road Map

HARDWARE: So many code names, so little time. We tell you what's coming, what each new chip will do and when it's promised to arrive.
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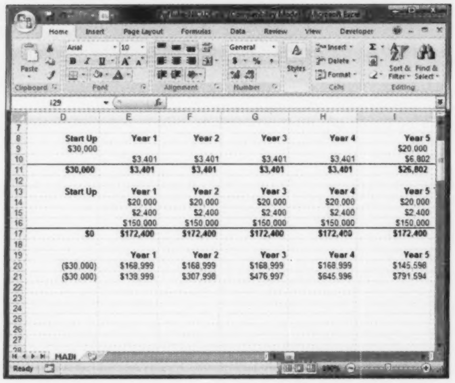
Excel 2007 Cheat Sheet



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8	Start Up	Year 1	Year 2	Year 3	Year 4	Year 5
9	$30,000					$20.000
10		$3.401	$3.401	$3.401	$3.401	$6.802
11	$30,000	$3,401	$3,401	$3,401	$3,401	$26,802
12						
13	Start Up	Year 1	Year 2	Year 3	Year 4	Year 5
14		$20.000	$20.000	$20.000	$20.000	$20.000
15		$2.400	$2.400	$2.400	$2.400	$2.400
16		$150.000	$150.000	$150.000	$150.000	$150.000
17	$0	$172,400	$172,400	$172,400	$172,400	$172,400
18						
19		Year 1	Year 2	Year 3	Year 4	Year 5
20	($30.000)	$168.999	$168.999	$168.999	$168.999	$145.598
21	($30.000)	$138.999	$307.998	$476.997	$645.996	$791.594

SOFTWARE: The Office 2007 user interface is quite different from earlier versions. We'll help you get the most out of Microsoft's latest spreadsheet app.
computerworld.com/software

Customers Get a Supercomputer On the Cheap

SERVERS: IBM's now-older-generation Blue Gene/L appeals to IT shops that want to pump up their computing power for less money than they would have had to pay in the past.
computerworld.com/servers

Laptop Industry Faces Parts Shortages

MOBILE/WIRELESS: Parts shortages could mean that you'll see fewer deals on laptops in the coming months, since hardware makers will be paying premium prices for some components.
computerworld.com/mobilewireless

Portrait of a Linux iPhone-Killer Wannabe

MOBILE/WIRELESS: A relatively unknown vendor from Taipei with a new touch-screen phone believes open source is the key to competing with Apple's iPhone (far right) and other major players.
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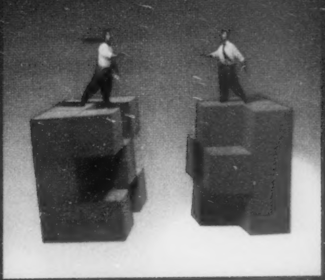

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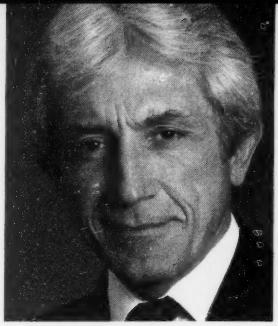
EDITOR'S NOTE

Don Tennant

Identity Card Paranoia



IF THERE'S one thing that really gives me the willies, it's a book-burning. The idea of a bunch of fanatics deciding on their own accord that certain books not only shouldn't be read but should never have been written is about as chilling as it gets for anyone who makes his living off the written word.

Even if you don't make your living this way, you're likely to agree. But if we think about it, most of us could probably come up with at least one book that we wish had never been written. We may not be prone to throwing copies of it onto some creepy bonfire, but we still might be convinced that we'd all be better off if the particular book had never seen the light of ISBN day. For me, one such book is ISBN No. 9780451524935. You're no doubt more familiar with the four-digit title George Orwell gave it: *1984*.

It's difficult to think of a single published work that has caused more senseless hand-wringing or outright paranoia in the span of 58 years (*1984* was written in 1948 and published in 1949). It seems all you have to do is whisper "1984" or "Big Brother," and you're able to whip people into a privacy-rights frenzy that sends them over the common-sense edge. I'm convinced that without those whispers, we would have a national ID card by now, and we'd all be a lot better off.

Now, before I'm thrown onto the pyre for spewing such socialist heresy, bear with me long enough to at least get a sense of where I'm coming from. For starters, I have an abiding appreciation for the freedoms we enjoy as Americans, and I have no qualms about expressing that appreciation.

My daughter, Shelly, and I were among the hundreds of thousands of people crowded onto the Charles River Esplanade in Boston for the huge Fourth of July celebration last month. One of the real highlights for me was a ceremony that was held to confer U.S. citizenship upon 26 people who had come from 23 countries as diverse as Ireland, Latvia, Sierra Leone and China. One minute, those 26 people had almost nothing in common. The next, they shared an invincible bond as Americans.

When that electrifying moment arrived, the cheers were deafening. Those 26 people looked out onto the Esplanade, some smiling, others crying, but all proudly waving small American flags. And those of us in the crowd welcomed them with applause and more waving flags. Yes, there I was in my signature stars-and-stripes Joe Boxers (no, I'm not kidding; yes, I apologize for the visual), waving not one, but two flags high above my head.

■ Without those whispers of '1984' and 'Big Brother,' we would have had a national ID card by now.

To get to the point of all this, I am absolutely convinced that our 26 new compatriots would have proudly and gladly held a national ID card high in the hand that wasn't clutching a precious American flag. I'm convinced of that because they're not saddled with the "Big Brother" baggage that those of us fortunate enough to have been born here grow up with. They would simply be thrilled to have their names in the database that identifies them as U.S. citizens.

I recognize that I'm not going to change the mind of anyone who believes that a national ID card is a bad idea, and to be honest, that's not my purpose. All I want to do is offer the suggestion that you can be a flag-waving, freedom-loving American and still believe that a national ID card is a good thing. The privacy crowd needs to chill a little and understand that fanaticism is no more helpful in this debate than it is in any other. ■

Don Tennant *is editor in chief of* Computerworld. *Contact him at don_tennant@computerworld.com.*

For all stories go to www.microsoft.com/getthefacts

Microsoft

The Highly Reliable Times

VOLUME 1 – ISSUE 4

Windows Server 2003

STATE OF ILLINOIS VOTES FOR WINDOWS SERVER OVER LINUX

WELCOME TO
ILLINOIS
THIS IS
Windows Server
COUNTRY

Tom Nagy for The Highly Reliable Times

THE STATE OF ILLINOIS covers 56,400 square miles, with a population of about 13 million.

> ***"It would have meant too much pain for us to move to Linux. For us, stacking up mismatched parts doesn't make good business sense. That's why we went with Windows Server."***
>
> *– Paul Campbell, former Director, Illinois Department of Centralized Management Services*

Risk of Linux Too Great–State Government Needed Reliability

By MICHAEL BETTENDORF

SPRINGFIELD, Ill. – As part of a massive effort to modernize and standardize its IT infrastructure, the State of Illinois had narrowed the choice down to either a commercial distribution of Linux or Windows Server® 2003 as the foundation for the new system. The state's IT staff had specific criteria that had to be met, and reliability was at the top of the list. After an evaluation of the two platforms, the state simply found too many questions around Linux.

"We can't take big risks with our technology," said Paul Campbell, former Director of the Illinois Department of Central Management Services. "State government needs trusted, tested technology that's reliable and predictable." By choosing Windows Server 2003, Campbell felt the state was investing in a well-tested, well-integrated technology that would deliver the high system reliability he expected. With Linux, he wasn't so sure: "It would have meant too much pain for us to move to a Linux-based system. In government, IT is all about consistency and reliability. So for us, stacking up mismatched parts doesn't make good business sense." In addition, Campbell had confidence that Windows Server would be a good choice for the future, saying, "Part of the reason we felt we could rely on Windows Server is that there's a great roadmap for the platform. With Linux, there is no roadmap."

For the full State of Illinois case study, plus other case studies and independent research findings on the reliability of Windows Server versus Linux, visit our Web site at microsoft.com/getthefacts

BREAKING NEWS: Colleagues baffled by IT director's calmness

Since achieving rock-solid reliability from a new Windows Server implementation, Paul Campbell (left) has been calm and "almost Zen-like," according to one associate. *– Continued on Page B3*

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■ LETTERS

Time for 40 Over 40?

I read the "40 Under 40" article [July 9] with 100% certainty that somewhere you would highlight 40 IT leaders *over* the age of 40, maybe in your July 16 issue. I was sorely disappointed. What message are you sending to us IT folks 40 and over who have been in the business many years and have laid the groundwork for most of the technology that is being used by the under-40s? Are we to think we are no longer deemed important?

■ **Catherine D. Bursese,**
Schenectady, N.Y.

Readers Give High Marks to Small CW

I charged through the inaugural edition [July 9] of the new compact *Computerworld* this afternoon. Your team did a superb job: The downsized publication still looks good and flows well. I have been scrutinizing *CW* stories for 34 years, and it is still one of my favorite publications. Whatever you are paying Frank Hayes, he deserves an increase — his column is the most worthwhile chunk of text printed between the covers of your very good weekly magazine.

■ **Peter Powers,** *IT project manager, Statesville, N.C.*

I've been reading *Computerworld* for less than a year, but I think the new format is slick and clean. *Computerworld* keeps me fresh on what the rest of IT is doing. I find the articles interesting, almost always cover to cover. There's an air about *Computerworld* that separates it from the rags that are targeted toward my age group. Seeing as the magazine is nearly 20 years my senior, it feels experienced and calm about reporting what's really important to IT professionals. From what I gather, most of your readership started where I am now and have not only moved up, but moved up with *Computerworld*. I'm hoping to do the same thing as I climb through the rungs of the IT and corporate ladders. Thanks for being along for the ride.

■ **Aaron Shanas,** *software development technical analyst, Best Buy, Richfield, Minn.*

I was concerned that I might not recognize the shrunken version of *Computerworld*. Thanks for leaving enough to be recognized, and for the great new "innards." You and your staff have done an outstanding job, and I look forward to future editions with the new format, look and feel.

■ **Darrell Minten,** *King City, Calif.*

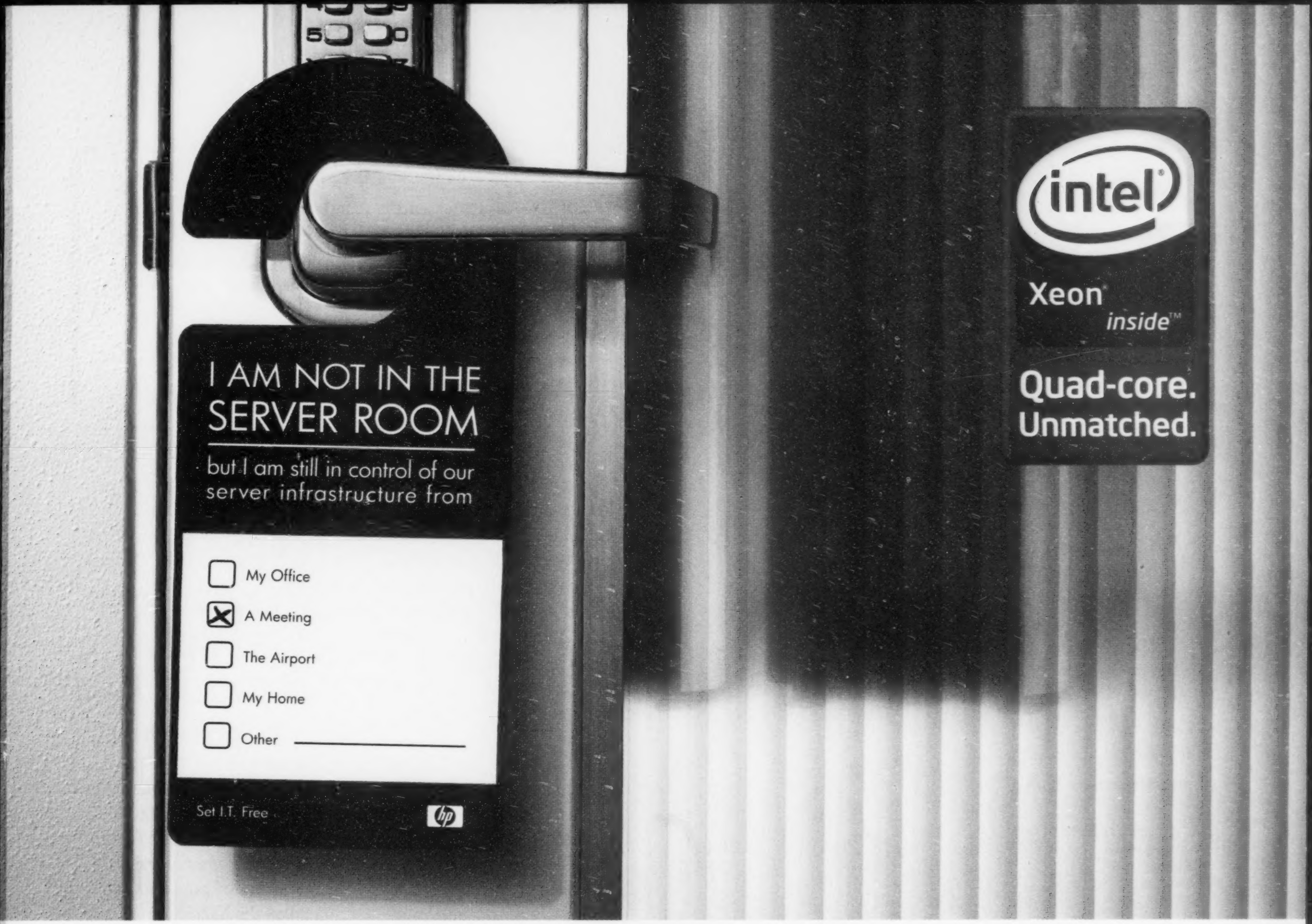
I've had a subscription to your magazine for about seven years. Initially, it was the journal that I read last, if at all. However, in the past two years, it has become the journal that I read first, and I typically find multiple articles of interest. Now, some of that I chalk up to my changing role (greater focus on the IT director part of my job, and less on the network admin/engineer part). But I think that you have upped your quality. Specifically, I love the way you keep a pulse on trends in technology. I appreciate the breadth of what you cover — from the potential business impact of iPhones to encryption on USB thumb drives to debating the pros and cons of outsourcing. I enjoy the opinion pieces. Overall, I think I am a better IT director with you in my corner. Thanks!

■ **Tanya Morton,** *IT director, Colorado Springs*

No One Flops as Badly as Uncle Sam

In listing "The 10 Biggest Technology Flops of the Past 40 Years" [July 9], how could you overlook the U.S. government, which gave us the FAA air traffic control upgrade of the '70s and '80s and the various and ongoing attempts by the FBI at computerization?

■ **Richard Rosenheim,**
Blue Diamond, Nev.



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News Digest

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THE WEEK AHEAD

MONDAY: Cisco Systems is slated to report its fourth-quarter and year-end financial results.

MONDAY: The LinuxWorld conference kicks off with a day of tutorials at San Francisco's Moscone Center. The conference sessions run from Tuesday through Thursday.

MONDAY: The 16th annual Usenix Security Symposium opens in Boston with a two-day training program, followed by technical sessions Wednesday through Friday.

ISTOCK/SEAN LOCKE

DATA SECURITY

Breaches Pushing Retailers to Adopt PCI

THE MASSIVE DATA breach at The TJX Companies Inc. disclosed earlier this year — and a string of smaller breaches at other companies — appears to be goading merchants to accelerate adoption of the Payment Card Industry (PCI) Data Security Standard.

Visa U.S.A. Inc. last week reported that about 96% of the world's largest businesses that accept credit and debit cards have stopped storing magnetic stripe information in their systems, meeting a key PCI requirement.

Purging magnetic stripe information, which includes cardholders' personal data, marks an important step toward full compliance with PCI, said Michael Smith, senior vice president of enterprise risk and compliance at San Francisco-based Visa.

Retailers have been directed to meet the PCI standard by credit card suppliers Visa, MasterCard Worldwide, American Express Co., Discover Financial Services LLC and JCB International Credit Card Co.

The progress comes amid an overall uptick in the adoption of all the controls mandated by PCI, Smith noted.

According to Visa, about 40% of 327 Level 1 merchants — those processing more than 6 million transactions annually — have demonstrated their compliance with the standard, up from 36% of the 230 Level 1 retailers counted at the end of 2006.

Visa noted that 97 Level 1 merchants have proved that they are in compliance since last December.

Much of the adoption has been driven by a fear that merchants could become victims of a major breach, said Eduardo Perez, vice president of payment system risk at Visa U.S.A.

Recent events, he said, have "caused other players and merchants in the system to secure their systems."

"I think the progress is mainly due to the fear factor that a merchant won't end up as the next TJX," said Avivah Litan, an analyst at Gartner Inc.

Litan also noted that there is much frustration among retailers about what they perceive as changing interpretations of PCI rules by various card suppliers, and about the heavy costs involved in upgrading their point-of-sale systems to ensure that they don't store magnetic stripe data.

— Jaikumar Vijayan

E-VOTING

Diebold Flaws Pose Election Risks in Fla.

OPTICAL SCAN VOTING machines from Diebold Election Systems slated to be used in the presidential primary election in Florida next year are seriously flawed and could compromise the balloting, according to a recent report.

A study by Florida State University researchers, released last week by Secretary of State Kurt Browning, concluded that the Accuvote OS optical scan machine from Allen, Texas-based Diebold is vulnerable to vote manipulation by people who illicitly insert preprogrammed memory cards into a voting terminal.

INSERT BALLOT HERE

Diebold must fix its optical scanner by Aug. 17.

A Diebold spokesman said the company plans to fix the flaws in time to meet the state's Aug. 17 deadline.

The researchers are now evaluating machines from Diebold rival Election Systems & Software Inc.

- MARC L. SONGINI

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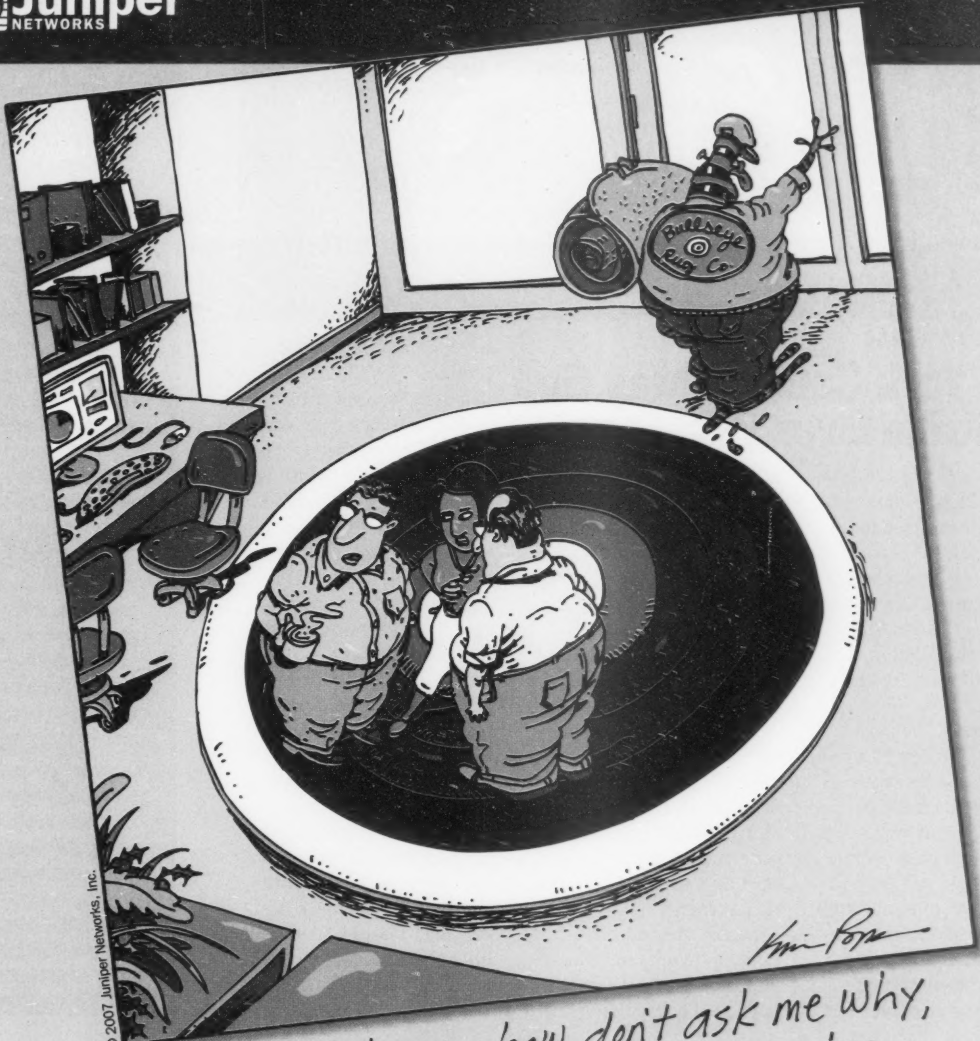
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"Don't ask me how, don't ask me why, but I've got a funny feeling we're being targeted for a security breach."

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New York Cabbies May Go On Strike Over GPS Plan

NEW YORK taxi drivers have promised to go on strike next month unless the city halts plans to require that Global Positioning System technology be installed in the city's 13,000 cabs by early next year.

Members of the New York Taxi Workers Alliance, which represents about 8,400 drivers, are worried that their bosses will track their whereabouts even when they are off-duty, according to statements from six drivers and Executive Director Bhairavi Desai.

At a press conference late last month, driver Lea Acey said a GPS is "like an ankle bracelet they put on criminals." The alliance plans to announce a strike date in mid-August.

The New York City Taxi and Limousine Commission last week said that it does not plan to change the schedule for implementing the Technology Enhancements Service Project, which would let passengers pay fares via credit cards, eliminate some paper records and let riders watch the taxi's route in real time on a screen.

Under the plan, all taxicab owners must sign contracts with one of four approved technology vendors — Creative Mobile Technologies LLC, Digital Dispatch Systems Inc., Taxi Technology Corp. or VeriFone Transportation Systems Inc. — this month and have the systems installed between Oct. 1 and Jan. 31.

"It's reasonable for an employer to deploy GPS," said Craig Mathias, an analyst at Farpoint Group in Ashland, Mass., who has consulted on GPS projects.

"This is not *1984* or tracking citizens," he said. "It is tracking people with objects, and it will improve efficiency."

At the same time, Mathias said he understands the concerns. "People are rightly worried about Big Brother," he said. "It should not be used unless consent is given."

— Matt Hamblen

Short Takes

CA Inc. has filed a $200 million copyright lawsuit against rival developer Rocket Software Inc., alleging that the company hired away developers and stole source code. The suit charges that Rocket stole the code to create six database management tools.

Mozilla Corp. patched a pair of flaws in its Firefox browser, two weeks after security researchers first started posting code that showed how the flaws could be exploited. Mozilla rated the problems "critical."

Microsoft Corp. has cut the price of Windows Vista in China by 67% – to $65.80 – in a bid to boost sales there. The operating system's list price starts at $199 in the U.S.

Dell Inc. has agreed to acquire ASAP Software Inc., a provider of tools for managing software license purchases, renewals and compliance, for $340 million. ASAP employs about 600 workers. The deal is expected to close in the third quarter.

SECURITY

Researchers Warn of AJAX Security Risks

LAS VEGAS

Companies that have used Asynchronous JavaScript and XML (AJAX) to jazz up corporate Web sites may be dangerously vulnerable to a variety of Web-based threats, warned researchers at the Black Hat USA conference here last week.

Billy Hoffman, lead research and development engineer at Web security vendor SPI Dynamics Inc. in Atlanta, said at the conference that many corporate Web developers are not paying attention to fundamental AJAX security issues.

AJAX allows a Web site to refresh content without reloading an entire page.

Among the biggest threats, said Hoffman, is that poorly coded AJAX sites can provide hackers with an opening to change the order in which a program executes functions.

"Any secrets stored in JavaScript will be found and exploited," Hoffman said in a white paper he wrote with Bryan Sullivan, development manager at SPI. "This is a far easier mistake to make in an AJAX application than in a traditional Web application because the client plays a larger role in data processing, presentation and possibly storage."

Hoffman and Sullivan explained the security holes to attendees during a session at the conference.

– JAIKUMAR VIJAYAN

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STORAGE

Wal-Mart Turns to HP for Data Warehouse Update

AP PHOTO

WAL-MART STORES INC. last week said that it plans to use Hewlett-Packard Co.'s new Neoview data warehouse technology to analyze data collected from its 4,000 retail stores.

Nancy Stewart, Wal-Mart's chief technology officer, said that the HP technology will augment the company's mammoth Teradata data warehouse.

"We gave [HP] no breaks in terms of our expectations for them to run in production, [and] they held up to it," she said.

High availability was the most important criterion for the new system. "I was adamant that it had to perform and have the highest availability, because we run at 100% availability," Stewart said.

The Neoview offering, which includes data warehousing hardware, software and services, was developed as part of an internal effort launched last year to consolidate more than 700 HP data marts into an enterprise data warehouse.

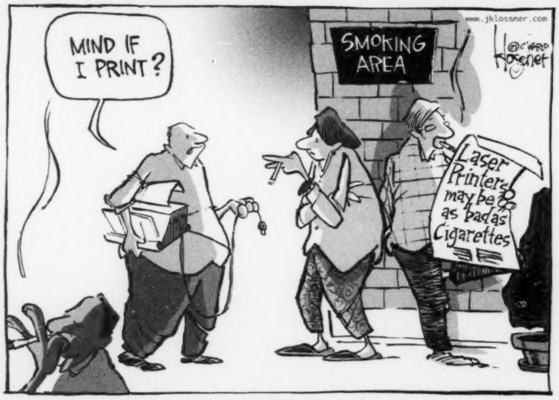
Wayne Eckerson, director of research at The Data Warehousing Institute in Seattle, said the HP deal isn't surprising. He noted that Randall Mott, HP's executive vice president and CIO and a former CIO at Wal-Mart, has "political clout, and that HP has the resources to give Wal-Mart a good deal to give Neoview a kick-start."

"Wal-Mart is big enough to throw some money to HP to try out a new platform for a new requirement," Eckerson said.

— Heather Havenstein

BETWEEN THE LINES

By John Klossner



BENCHMARKS LAST WEEK

The Rhode Island Department of Health awarded Electronic Data Systems Corp. a three-year, $1.7 million contract to build and manage one of the first statewide networks for e-health records.

Microsoft Corp. broke ground on a 500,000-square-foot data center in San Antonio that will use recycled water in its cooling system, reducing water and energy use.

20 YEARS AGO: FCC Chairman Dennis Patrick proposed a system of price caps, instead of profit limits, to regulate AT&T and local telephone companies.

Global Dispatches

U.K. Military Plans E-health System

LONDON - The U.K. Ministry of Defence plans over the next year to roll out an £80 million ($163 million U.S.) IT system that will enable military health records to be accessed across the U.K., overseas and on the battlefield.

The decision to implement the Defence Medical Information Capability Program worldwide comes after the completion of successful tests at the Chicksands and Waterbeach Medical Centres, and then a full rollout at the Colchester Medical Reception Station.

The program is scheduled to be rolled out to all U.K. military medical facilities over the next 12 months. It will be deployed in hospitals in the field and on battleships by 2010, said Derek Twigg, undersecretary of state for defence.

Leo King,
Computerworld U.K.

Brocade Opens Indian R&D Center

BANGALORE, INDIA - Brocade Communications Systems Inc. has opened a research and development center here to create software for storage and data mobility applications.

Over the long term, the operation may also move into hardware development, said Zahid Hussain, vice president of engineering at San Jose-based Brocade.

He added that the company will continue to outsource development work to Wipro Ltd., which is also based here, and to HCL Technologies Ltd. in Noida, India.

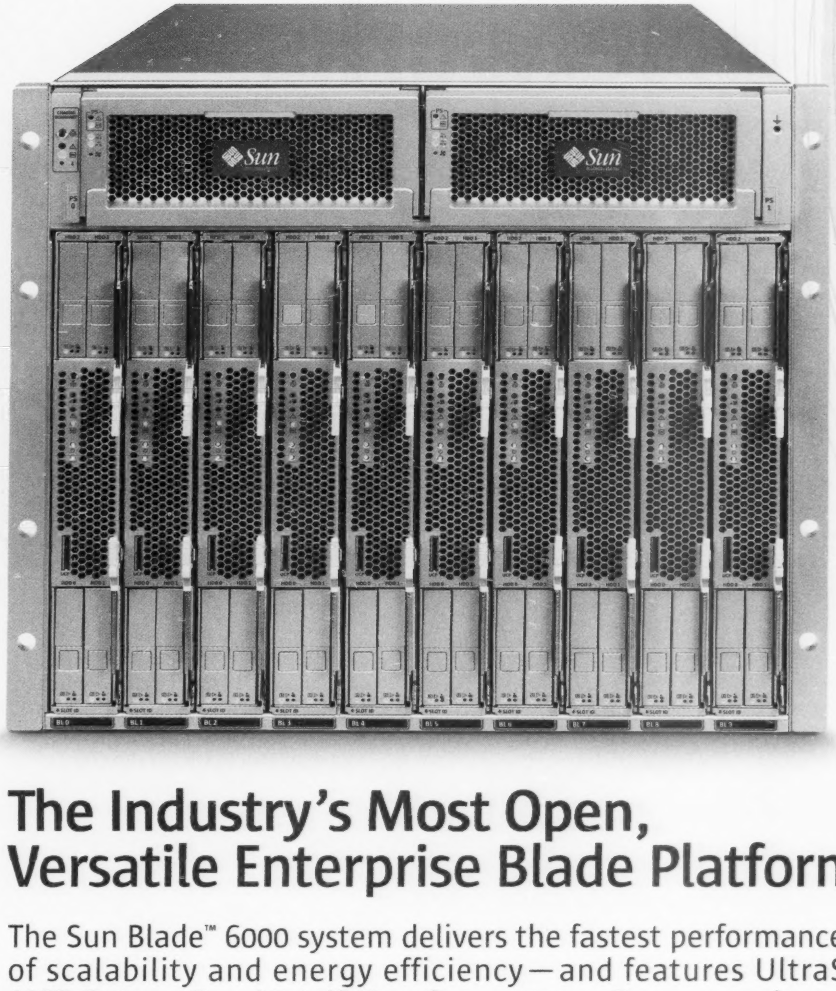
The new center will employ 50 engineers, while HCL and Wipro will dedicate a combined 400 staffers to Brocade's projects.

John Ribeiro,
IDG News Service

BRIEFLY NOTED

Koninklijke KPN NV, a telecommunications company in The Hague, has agreed to acquire IT services provider Getronics NV for €766 million ($1.05 billion U.S.). Amsterdam-based Getronics' customers are mostly in the manufacturing, financial services and government sectors, said Koninklijke.

John Blau,
IDG News Service



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Sensitive Data Leaking Onto P2P Networks

Government, businesses hit by inadvertent disclosures. **By Jaikumar Vijayan**

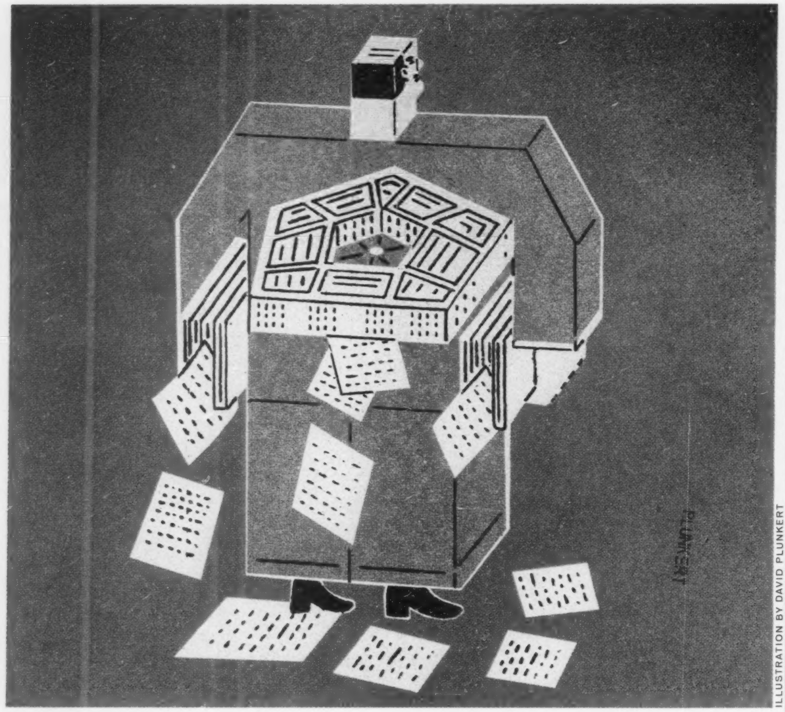

ILLUSTRATION BY DAVID PLUNKERT

CORPORATE AND government documents containing confidential — and sometimes classified — data are increasingly getting exposed through the use of peer-to-peer networks on computers holding the sensitive information.

The problem of inadvertent exposure of sensitive data on P2P networks is a "whole lot worse" than many government and corporate IT managers believe, said Eric Johnson, professor of operations management at the Center for Digital Strategies at Dartmouth College's Tuck School of Business in Hanover, N.H.

Much of the problem, Johnson told the U.S. House Committee on Oversight and Government Reform late last month, is due to the installation of P2P software on computers used by telecommuting workers and contractors.

"P2P file-sharing networks represent a significant and poorly understood threat to business, government and individuals," Johnson said. "Every employee, contractor, customer or supplier is a potential weak link."

Retired U.S. Army Gen. Wesley Clark, a member of the board of directors at Tiversa Inc., a Cranberry Township, Pa.-based provider of P2P network monitoring services, told the House committee during a hearing that he was able to access more than 200 sensitive government documents from file-sharing networks in a matter of hours.

Clark said he found classified diagrams of the Pentagon's backbone network infrastructure, complete with IP addresses and password change scripts; physical terrorism threat assessments for three major U.S. cities; and information on the U.S. Department of Defense's information security system audits on P2P networks. "There's all kind of data leaking out inadvertently," Clark told the committee.

The documents discovered during Clark's search were "simply what we found when we put the straw in the water," he said. "The American people would be outraged if they were aware of what is inadvertently being disclosed on P2P networks," said Clark.

The retired general said that the use of P2P software by a contract worker at the Pentagon likely caused much of the data to leak onto the P2P network. The breach was discovered in May.

Daniel Mintz, CIO at the U.S. Department of Transportation, told the committee that 93 DOT-related documents were inadvertently exposed on a P2P network in March.

He blamed the release of the documents on the installation of Lime Wire LLC's LimeWire P2P software on the computer of a DOT worker who was authorized to work at home. Mintz said the music- and video-sharing software was installed by the worker's teenage daughter.

The DOT inspector general "found that 30 of the approximately 93 DOT-related documents were publicly accessible at the time via LimeWire or other P2P software by virtue of residing in a shared folder," Mintz said.

The breach occurred despite DOT efforts to implement security tools and programs that meet the requirements of the Federal Information Security Management Act, Mintz said.

Continued on page 18

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Continued from page 16

"None of these [security measures] were sufficient to prevent access to government documents when a young family member downloaded software that she did not realize would be capable of exposing these documents to anyone else using the same or compatible software," he said.

Robert Boback, CEO of Tiversa, said that the problem of exposing sensitive data through P2P networks is also growing on the corporate side.

Publicly disclosed examples include Pfizer Inc.'s acknowledgment in June that personal data on about 17,000 employees had been exposed on a P2P network after the spouse of an employee used a company computer to access a file-sharing network.

In letters to the affected employees, the New York-based pharmaceutical firm said that data on about 15,700 of those workers was accessed and copied by an unknown number of persons on a P2P network.

Speakers at the hearing noted that if used correctly, popular P2P clients like Kazaa from Sharman Networks Ltd., LimeWire, BearShare from Musiclab LLC and Morpheus from StreamCast Networks Inc. are safe.

However, if files downloaded using the software are stored in folders alongside sensitive data, the latter could be exposed to other users of the software, they noted.

> **"The best argument for deep-packet inspection is peer-to-peer traffic.**
>
> **LLOYD HESSION,**
> CSO, BT RADIANZ

Lime Wire Chairman Mark Gorton said that the New York-based firm's P2P software contains several features designed to prevent inadvertent file-sharing, including the ability to prevent sharing of specific files or folders.

He said that users are warned when they try to share folders that are likely to contain sensitive information.

"At Lime Wire, we continue to be frustrated that despite our warnings and precautions, a small fraction of users override the safe default settings that come with the program and end up inadvertently publishing information that they would prefer to keep private," he told the House committee.

PREVENTIVE MEASURES

Chenxi Wang, an analyst at Forrester Research Inc. in Cambridge, Mass., said that despite a growing list of data leaks, some organizations continue to view the use of P2P networks by workers and contractors as a nuisance rather than as a security issue.

Many IT managers still take insufficient measures to control such networks. They usually implement controls to block ports commonly associated with P2P activity and add network-filtering technologies to prevent leaks of sensitive data, she said.

Wang noted that older network intrusion-detection and -prevention systems are incapable of detecting P2P traffic. Therefore, she said, the widely used tools are helpless when dealing with the latest generation of P2P software, which is designed to evade security technologies by using encryption and commonly used ports such as e-mail to communicate.

Lloyd Hession, chief security officer at BT Radianz in New York, suggested that companies use deep-packet inspection technologies as part of any effort to prevent illicit P2P traffic.

Deep-packet network-filtering tools are designed to inspect the contents of packets flowing through the network and determine how they should be treated based on policy. "The best argument for deep-packet inspection is peer-to-peer traffic," Hession said.

In addition, companies should shut down administrative privileges on all laptops and other client devices to ensure that users can't download P2P software onto their systems, Hession suggested. ■

DOT Looks to Avoid Further P2P Leaks

THE U.S. Department of Transportation is taking several steps to prevent further exposure of internal information, after more than 90 agency documents were exposed on a peer-to-peer network.

The documents were inadvertently exposed on a file-sharing network after the teenage daughter of a telecommuting DOT worker installed a P2P client on an agency PC containing the information.

Daniel Mintz, the department's CIO, said the incident prompted the agency to quickly initiate several programs to mitigate the chances of a repeat occurrence involving more-sensitive data.

"P2P software poses a significant risk to departmental systems and networks as well as home computers," Mintz said. "In many ways, this incident and the nature of the people involved illustrate the challenges" of dealing with P2P.

Steps taken by the department include the following:

- **An increased emphasis on moving DOT employees from desktop configurations to secure laptops that feature encryption technologies compatible with Federal Information Processing Standard 140-2.**
- **Prioritizing the order in which telecommuting employees replace desktop systems with secure laptops.**
- **Conducting more awareness training programs outlining to new employees and telecommuting workers the risks of downloading and using P2P software.**
- **The creation of home desktop configuration guides to help telecommuters protect home PCs against inadvertent file-sharing.**
- **Installation of new centrally managed network security software that can better monitor the use of permitted software and detect the use of prohibited products such as P2P software.**
- **A review of security policies by the DOT CIO's office and inspector general to identify other problems that need to be addressed to avoid P2P problems.**

– JAIKUMAR VIJAYAN

THE SPYWARE PROBLEM IS BIGGER THAN YOU THINK

RECENTLY HACKERS MANAGED TO TRANSFER ALMOST HALF A MILLION DOLLARS FROM A CALIFORNIA CITY'S GENERAL FUND TO BANKS ACROSS THE COUNTRY. THEY DID IT BY USING A KEYLOGGING PROGRAM THAT THE CITY TREASURER ACCIDENTALLY DOWNLOADED. THIS PIECE OF SPYWARE GAVE THE HACKERS BANK ACCOUNT LOGIN & PASSWORD INFO. HAD THE HACKERS BEEN ORGANIZED PROFESSIONALS, THIS MIGHT HAVE GONE DAYS WITHOUT BEING NOTICED, WITH THE MONEY BEING SENT OFFSHORE WHERE IT'S HARDER TO TRACE AND RECOVER. THE SPYWARE PROBLEM IS BIGGER THAN YOU THINK. ONE IN TWELVE SEARCH LINKS ACTUALLY TAKES YOU TO A PAGE THAT TRIES TO LOAD SOME FORM OF SPYWARE ON YOUR COMPUTER. SO IT'S NOT JUST A PROBLEM FOR PEOPLE WHO SURF THE WEB FOR FUN. IT CAN AFFECT THOSE RUNNING A BUSINESS OR EVEN CITY HALL. OF COURSE, THERE'S A SMARTER SOLUTION. ONE THAT FINDS 94 PERCENT OF THE MORE THAN 200,000 SPYWARE DEFINITIONS AGREED UPON BY THE ANTI-SPYWARE COALITION.

IN THE SPRING OF 2007, A MAJOR RETAILER REPORTED HACKERS HAD BROKEN INTO THEIR RETAIL OPERATIONS SYSTEMS, ACCESSING CREDIT & DEBIT CARD INFO FROM STORES AROUND THE U.S AND PUERTO RICO. EXPERTS ESTIMATE THAT AS MANY AS 45.7 MILLION CREDIT & DEBIT CARDS HAVE BEEN STOLEN. OVER $8 MILLION IN RELATED FRAUD HAS BEEN REPORTED TO DATE. AT $10 TO REPLACE EACH CARD & $180 TO HANDLE EACH CALL, IT'S EASY TO SEE HOW THIS BREACH IS GOING TO COST BILLIONS TO REMEDIATE. AND THE UNTOLD COSTS TO THE BRAND HAVE YET TO BE SEEN.

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Vendors Hope IT Is Ready for 802.11n

IEEE approval of the wireless LAN standard is not expected until next year. **By David Haskin**

SEVERAL VENDORS are targeting large corporate IT operations with next-generation wireless LAN technology based on the emerging, and as-yet unofficial, 802.11n standard.

Trapeze Networks Inc., Meru Networks Inc. and Aruba Networks Inc. have all disclosed plans to release enterprise-class equipment based on the current Draft 2 of the 802.11n standard before the end of the year. Meanwhile, the Wi-Fi Alliance has already launched a program to certify Draft 2-based equipment for interoperability.

Analysts predicted that those efforts will stumble because large IT operations are likely to maintain a tradition of avoiding emerging standards until they are approved by established bodies — in this case by the Institute of Electrical and Electronics Engineers Inc. Final approval of the 802.11n standard by the New York-based IEEE isn't expected for more than a year, they said.

≚ Students at Morrisville State College in New York are looking forward to a new 802.11n network coming this fall.

COURTESY OF MORRISVILLE STATE COLLEGE

"It goes against what my 15 years in IT tells me is right," said Michael Brandenburg, a former IT manager who is now an analyst for enterprise networking systems at Current Analysis Inc. in Washington.

"Do I see 'n' getting much [enterprise] market share before ratification? No," he added.

Earlier this year, Clifton Naughton, director of network services at The Boeing Co., said the Chicago-based airplane maker will not use so-called precertified 802.11n products. However, he noted that the company will likely do "some lab testing with 802.11n prior to the standard being ratified."

> **" I just couldn't justify an expenditure on an [802.11] a/b/g network, which I felt was at the end of its life. It would have been financially irresponsible for us.**
>
> **JEAN BOLAND,** VICE PRESIDENT OF INFORMATION SERVICES, MORRISVILLE STATE COLLEGE

So far, few user organizations have publicly disclosed plans to transition to the draft 802.11n standard, according to analysts.

One of those early adopters is Morrisville State College, which turned to the new technology to replace aging WLAN technology, said Jean Boland, the Morrisville, N.Y.-based school's vice president of information services. "We were looking to replace our old [wireless] network, which we implemented in 1999," Boland said. "It's old — 2Mbit/sec. — with frequency hopping."

Boland noted that the choice between deploying technology based on 802.11n or its predecessor 802.11g standard was an easy one.

"I just couldn't justify an expenditure on an [802.11] a/b/g network, which I felt was at the end of its life," she said. "It would have been financially irresponsible for us."

An added incentive to switch to 802.11n was that the Lenovo laptops used by most students at the school have built-in support for 802.11n, Boland added. The college is now set to install 802.11n access points from Sunnyvale, Calif.-based Meru. Boland said she hopes those will be ready for students when the fall semester begins later this month.

Boland said she isn't concerned about the equipment being made obsolete by future revisions of the specification. "Every company has to evaluate their own circumstances," Boland said. "But I feel very comfortable going with the Draft 2 standard."

David Cohen, marketing director at Pleasanton, Calif.-based Trapeze Networks, said that the standard is unlikely to change significantly from the current Draft 2 spec before final ratification next year.

While Brandenburg agreed that the risk of changes to the current 802.11n draft is minimal, it's still a chance large organizations aren't willing to take.

He also cited other obstacles to early adoption, including the need to accelerate acquisition of gigabit-level equipment.

"Vendors say you won't need forklift upgrades to go to 'n,' " Brandenburg said. "But a/b/g work fine on 10/100 switches. You don't absolutely have to upgrade your switches for 'n', but [10/100] switches would turn your wired network into a bottleneck."

Cisco Systems Inc., the largest supplier of WLAN products, declined to disclose whether it plans to ship products based on the draft specification. ■

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On the Mark

HOT TRENDS ■ NEW PRODUCT NEWS ■ INDUSTRY BUZZ BY MARK HALL

EXCUSE ME, BUT, MY EXPERT MAP SAYS THIS SHOULD BE INDIA! SO, HOW'S THE CURRY?
TOURISTS...
DON'T FORGET THE TANDOORI CHICKEN!
Maps 'R' us!

MATTHEW FAULKNER

Will Democracy Vote the Experts Off the GIS Island?

WITH THE arrival of online mapping services such as Google Earth and Microsoft Virtual Earth, geographic information systems (GIS) are now at the fingertips of every Tom, Dick and Mary with an Internet connection. This strikes Vint Cerf as good news. The chief Internet evangelist at Google Inc., and one of the founding fathers of the Internet, says he'd like to see a geographic equivalent of Wikipedia — "Geopedia," he dubs it — where anyone could add to the world's geographic know-how. Jack Dangerman is skeptical. He's the president of Environmental Systems Research Institute Inc., a leading GIS software vendor in Redlands, Calif., known as ESRI. He worries that even the best-intentioned amateur could provide inaccurate data that could lead to a disaster. "Who wants to dig a hole and run into a pipe?" Dangerman asks.

A democratic GIS world would be more accurate, says Michael Jones.

The debate about whether GIS is a domain for experts or the rest of us raged throughout last month's GeoWeb 2007 conference in Vancouver, British Columbia. According to Michael Jones, Google Earth's chief technologist, by giving everyone access to GIS tools, you'll end up with "a big number of users converging on a truth." Locals, he insists, are closer to most GIS data than experts and have a vested interest in its accuracy. Timothy Seiple, a scientist at Columbus, Ohio-based Battelle Memorial Institute, which manages government laboratories, agrees. "Let's not just democratize GIS data usage; let's democratize data creation," he says. Ron Lake, CEO of GIS software vendor Galdos Systems Inc. in Vancouver, says there is a place for "crowd-sourcing data," and GIS professionals need to be willing to work with it. However, he adds, "there is such a thing as expert interpretation of information."

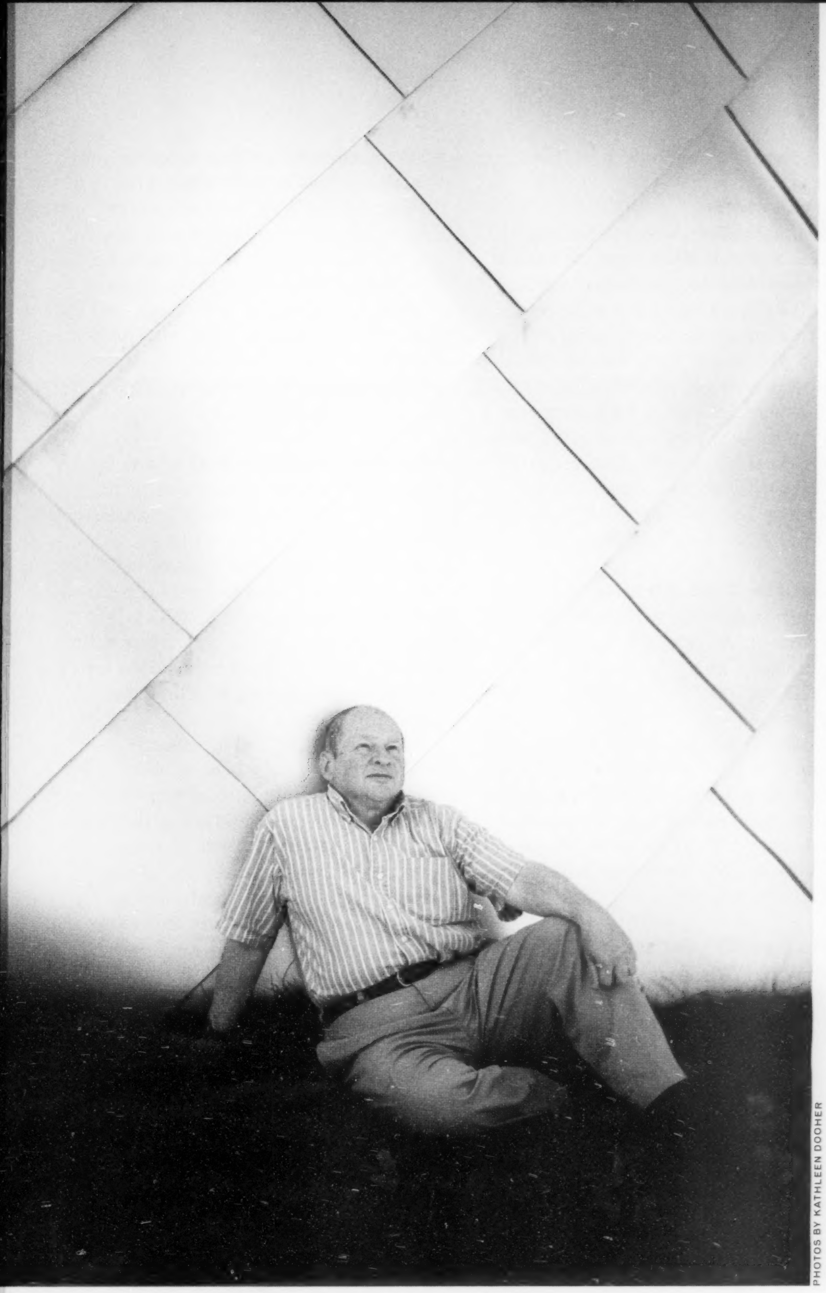
250M+
Downloads of Google Earth, per vendor.

Utilities Could Use a Little GIS Democracy

Geoff Zeiss, director of technology at Autodesk Inc. in San Rafael, Calif., argues that North America is experiencing an infrastructure crisis, much of which could be solved if up-to-date GIS data were available to the right people at the right time. He says the situation is particularly acute for utility companies. "They have pathological problems," Zeiss says, in that they are unable to get information about the condition of utility infrastructure from workers in the field back to the central data stores. They've been able to skate by, relying on a workforce that collectively carries the knowledge base in their heads, he says. But more than half of those workers are over 45 and heading toward retirement. What then? Zeiss argues that utilities need to give field workers tools to input GIS-related data into centralized systems before that information is lost.

20k
Kilometers of transmission lines maintained by Hydro One in Ontario.

Sadly, it's a two-way problem. Eldon Feaver, senior engineer for grid operations at Hydro One Inc. in Markham, Ontario, says that while worker safety is a top corporate priority, it has been difficult to get geography-specific safety data from central databases into field workers' hands. But with the advent of Web 2.0 tools, his team was able to sidestep the internal IT politics and put together an online service for Hydro One field workers, who can now get real-time safety information such as the path to the closest hospital from their current location. The next step is to outfit workers with GPS devices so they can be located in an emergency, such as when they're stuck dangling from transmission lines, Feaver explains. Good idea. ■



PHOTOS BY KATHLEEN DOOHER

■ THE GRILL

Hal Abelson

The **maverick professor** talks about giving away MIT **courseware**, **de-fossilizing computer science** and wearing the **'nerd'** label proudly.

Dossier

Name: Hal Abelson

Title: Professor of electrical engineering and computer science

Organization: MIT

Ambition: "To do something that is intellectually beautiful and makes a difference to the world."

Good book read recently: *Dream of the Red Chamber*, by Cao Xueqin

Something people don't know about him: "People know everything about me. There's no privacy in the Information Age."

Technology pet peeve: Microsoft Windows

Epitaph of choice: "He was a good teacher."

In 2001, you and five others started the Creative Commons movement, devoted to offering users and creators of intellectual property new rights options. Why is it significant? The great power of the Web is that people can share stuff and remix it and build on each other's work. But the way copyright law has evolved, it's just not well matched to the Internet. Since 1986, in the U.S., if you create stuff, at that moment, it's actually copyrighted. You don't have to register it. What that means is, if you go out on the Web and see stuff, you have to assume you can't use it. What should be a shared thing that people can use and contribute to ends up being an IP minefield.

Is it a minefield for creators of intellectual property as well? Yes, it works both ways. A lot of companies have internal documents, educational stuff that they'd like to post. But it's unclear what risks they take. So either they put on an "all rights reserved" copyright — which technically means no one on the Web can even copy it, so I'm not sure why it's on the Web — or they make some idiosyncratic license, and then you can't mix in

“Sometimes MIT is urged to seek ‘well-rounded’ people, but as the saying goes, ‘Well-rounded people are pointless.’”

HAL ABELSON, PROFESSOR OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE, MIT

things from other places.

So what [Creative Commons] makes is a standard set of licenses that are all worked out for posting things. So you can look at stuff and see what rights you have, either as a contributor or a user. There are now 140 million documents on the Web under CC licenses.

At Mozilla.com, there’s a menu that says, “Search for this on the Web, but only for stuff that’s CC-licensed.” Or you can go to Google or Yahoo and say, “Find me stuff, but only stuff that I can reuse.”

OpenCourseWare, which offers free online access to MIT courses, is another big movement that you helped launch. In 2000, there was going to be this $2 trillion market for material on the Web, and universities were wondering, “How are we going to charge for it?”

So when MIT said, “We are going to put these things up and make them free,” that was wildly countercultural. I was one of about six people who came up with this weird idea: Why don’t we give this stuff away?

What’s the status of it today? It’s been surprisingly more successful than we predicted. We have about 1,600 MIT courses up, and sometime next fall, we’ll hit 1,800. That’s virtually all MIT courses.

But this was not an MIT-only operation. It really was the vision that lots of universities put up collections of what’s now called “open educational resources.” There’s now the OpenCourseWare Consortium, with more than 100 members.

Who uses MIT’s courseware? It’s all over the world. We are up over 1.2 million visitors a month. About half are what we call “self-learners,” a lot of them at companies, and a lot are people who just want to know about stuff. One-third are students at other universities, and one-sixth are teachers.

How important is computer science today, anyway? Hasn’t it matured? It’s not that it’s matured; it’s gotten fossilized and myopic. People are still thinking about stuff that was happening 10, 15, 20 years ago, but the world of computing has changed immensely.

In traditional CS, if you think about technology as being a box, they are all looking inside the box, not outside the box.

For example, in traditional CS departments, people think about human-computer interaction as one person interacting with a machine. But what’s it like when you think about whole societies interacting [with machines]? That’s also human-computer interaction.

What’s outside the box that computer scientists should be looking at? The “science of the Web.” It’s still pretty undefined, but it’s this notion of, what are the consequences of having these very large shared-information spaces, and what’s the mix of technology and policy that makes that work? It’s looking at the impact of these systems on society and the way we think. That’s starting to happen.

What else is outside the box? The deep links with biology. We are getting to the point we can actually program individual cells.

It is certainly true that living cells and DNA will form a lot of the substrate on which we will do CS in the next 20 to 30 years. It’s called synthetic biology, and it will have enormous implications for the way we think about programming.

The other [link] is with neuroscience. People have been beating the artificial intelligence drum for 50 years, but we are now starting to learn how brains actually work. So now there’s a real opportunity to put that together with modern high-performance computing. There’s enormous potential there.

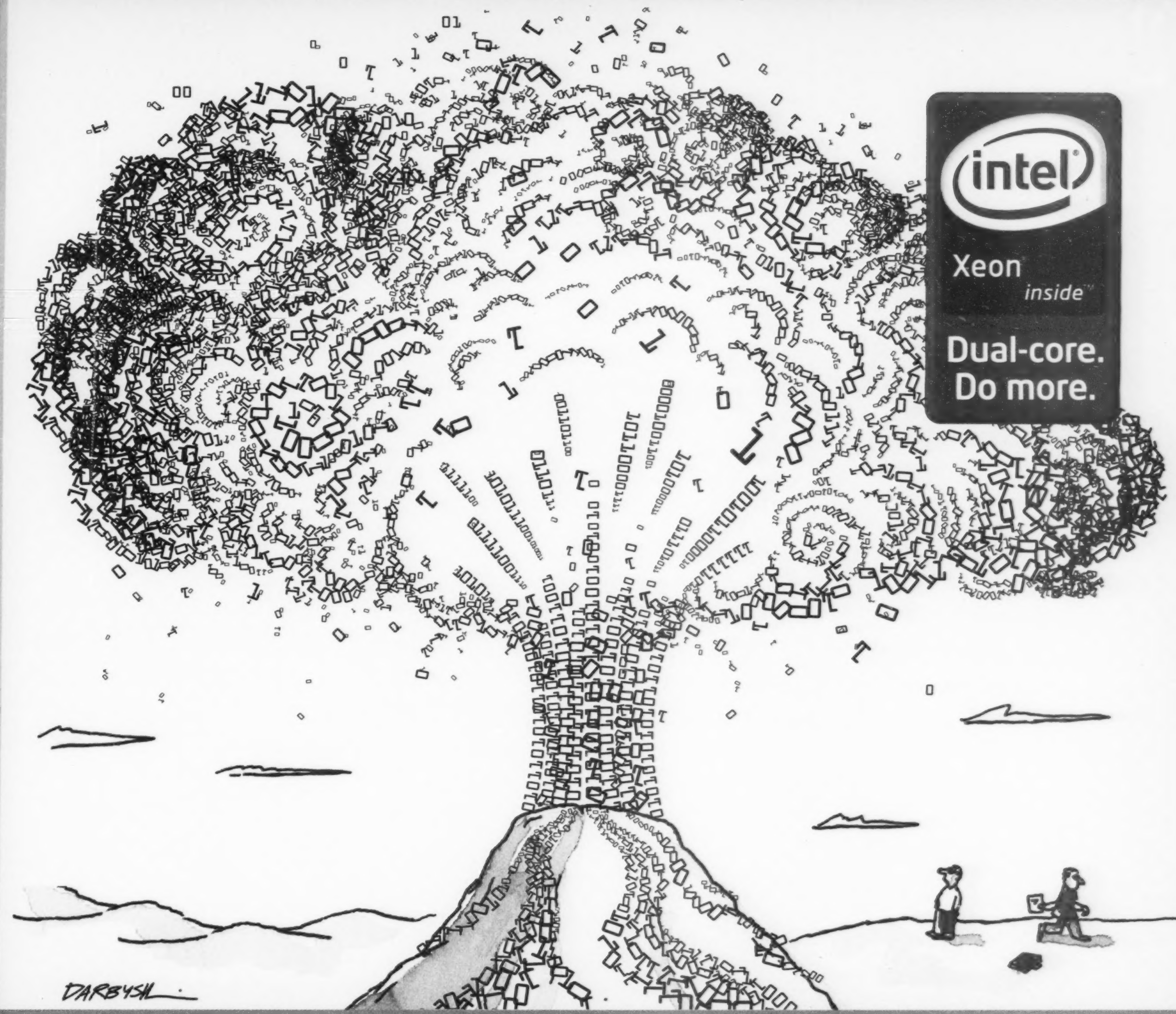
Why are fewer and fewer people, especially women, going into CS? Part of the issue is jobs not paying enough. There is also the thing I spoke about earlier, of CS not being expansive enough — this notion that the computer scientist will be sitting in a box writing Java code or something. That’s just not where the interesting stuff is.

Do computer scientists have a reputation for being “nerds,” and is that a problem? My nontechnology pet peeve is people who misuse the word “nerd” to mean antisocial misfit.

I use it to mean someone who is very enthusiastic, very interested in something. Sometimes MIT is urged to seek “well-rounded” people, but as the saying goes, “Well-rounded people are pointless.”

My wife, Lynn, is the originator of the MIT “Nerd Pride” slogan. We give out Nerd Pride pocket protectors.

— *Interview by* **Gary Anthes**



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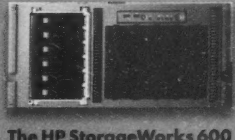

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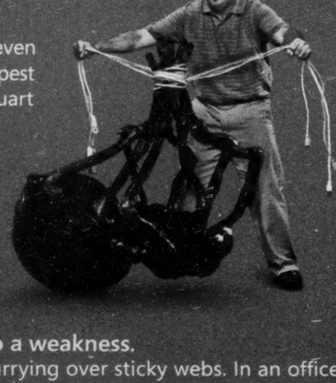
3. Use your superior human intellect.
Spiders are crafty hunters and one of nature's most efficient predators. A giant Spider can be even more intimidating. Remember though, you are a human, and while you may lack razor-sharp pincer jaws, you have the superior intellect. Use a firm hand and some cunning, and the Spider has no chance.

4. Put them to work.
So you've used your superior intellect to vanquish the Spider; why not take it one step further? Use positive reinforcement to train the Spider. Soon you'll have it helping out around the office, running errands, making coffee and copies, etc.

5. Bug spray (a better way).
The world's going green and we're all for saving the environment, so even when faced with rampaging, six-foot tarantulas, try some earth-friendly pest control instead. Mix one drop of peppermint or citronella oil to one quart water, borrow the neighbor's sprayer, and start pumping away.



6. Turn their strength into a weakness.
Eight legs are essential for scurrying over sticky webs. In an office setting, though, they can be a liability. Trip the Spider up with cables, masking tape, or even toilet paper—whatever you have at hand. Once they're tangled, push them over and run like heck.

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■ **OPINION**

Thornton May

IT Leaders Need a Mirror and a Scale

THE UPHEAVAL that is unsettling the IT industry suggests that a vast and deeply rooted transition is in progress. Not surprisingly, it has left a lot of IT workers disoriented. But it's essential that they get their bearings quickly if IT is to retain a place at the corporate table once this transition ends and a new paradigm emerges.

For any leader, one of the most potent tools for influencing others is a strong sense of self. If IT's leaders don't know who they are, don't understand what their organizations stand for and can't articulate the value that IT can deliver to an organization's users, then IT will be ignored or even bypassed. Richard Scase, author of *Global Remix: The Fight for Competitive Advantage*, wrote, "Few people now see themselves as members of a particular class, and a growing number feel that even occupation is insignificant to personal identity." As rampant as this feeling may be, IT workers can't afford to be struggling with identity.

Perhaps one reason why many IT workers are experiencing professional identity crises is that, more than any other discipline seated at the big table, IT lacks a set of good metrics. We need the organizational version of the Kardashev scale. Developed by Soviet astronomer Nikolai Kardashev in 1964, the Kardashev scale is a way to classify civilizations according to their technological advancement. Think how valuable it would be to be able to quickly see how technologically advanced an organization is.

As they exist today, IT's metrics are, for the most part, miscalibrated. Our dashboards lie to us. How misleading can this be? Consider this actual scenario: A new CIO was brought in by a high-tech firm with over $1 billion in revenue to turn around a failed IT organization. She asked to see the dashboard her predecessor had used to drive IT (into the ground, as it turned out). Quite to her amazement, all the reports gave the organization top marks, and all the dials on the balanced scorecard were in the green. According to the formal metrics, things could not have been better.

■ **Perhaps one reason why many IT workers are experiencing professional identity crises is that IT lacks a set of good metrics.**

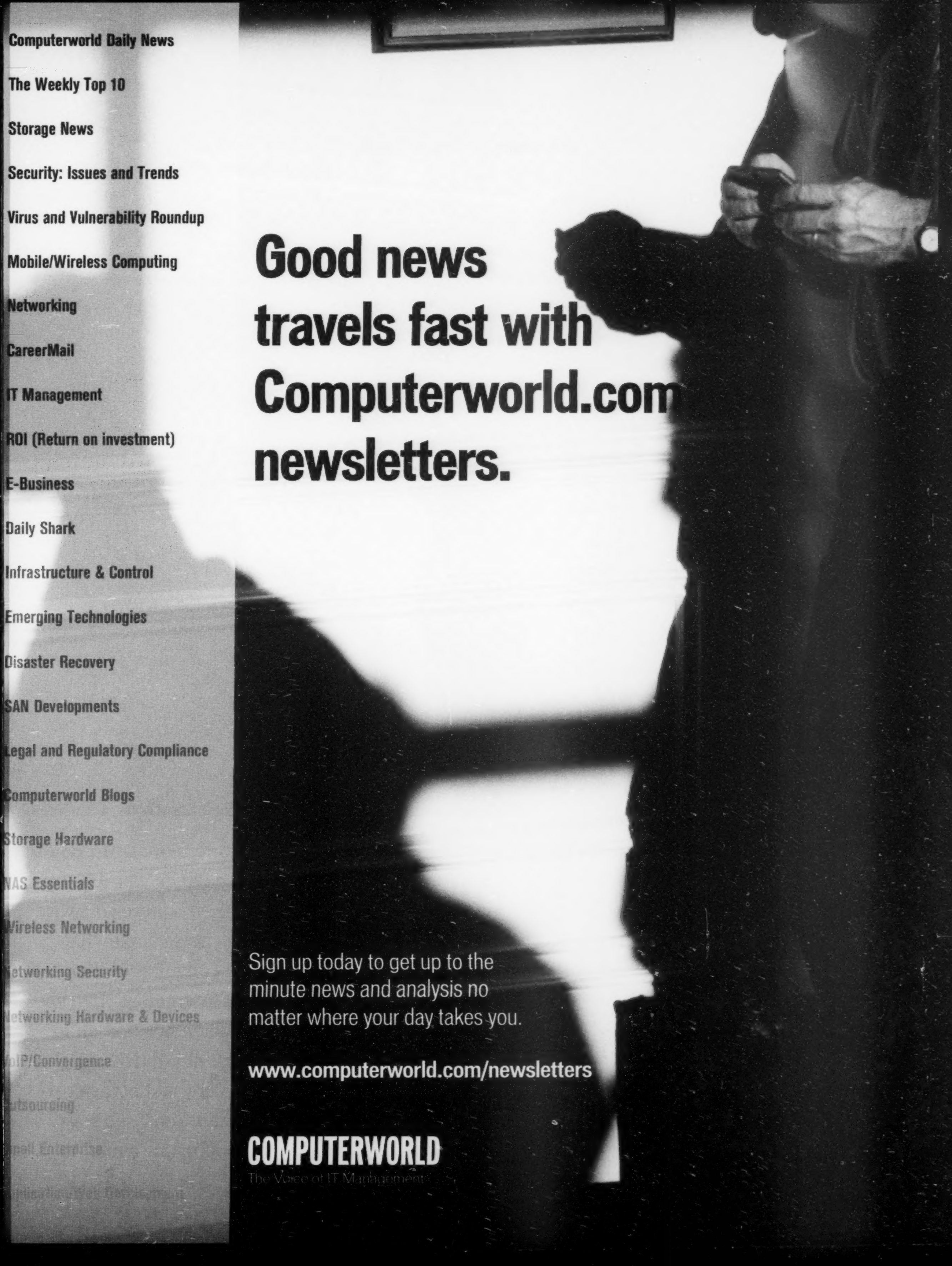
As IT leaders, we want to convince our corporate leaders that IT materially affects the current health and the future prospects of the enterprise. Why, then, shouldn't we expect our companies' investors, being prudent, and executives, not being malfeasant, to insist that we rely on unambiguous, accurate and actionable IT metrics?

Every IT leader of the next generation needs two tools: a mirror and a scale. The mirror is anything that gives people the self-awareness they need so that they fully grasp their place in the workplace and are able to articulate it to those who need to understand it. The mirror helps them understand who they are, who they want to be, what they do, what they want to do and, perhaps most important, why they do what they do.

The scale is any tool that can provide those important metrics and truly reflect how all of IT is doing the things it does. And because it truly reflects reality, the scale is to a certain extent the mirror. So, solving the metrics problem might go a long way toward solving the IT identity problem.

The civilization now on Earth sits below the three types of civilization defined by the Kardashev scale because it has not harnessed all the power available on the planet. Perhaps a Kardashev scale for organizations would be similarly calibrated, with Type I organizations able to harness all the computing power and brainpower available in the organization. That, my friends, would be something to aim for. ■

Thornton A. May *is a longtime industry observer, management consultant and commentator. You can contact him at thorntonamay@aol.com.*



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COMPUTERWORLD
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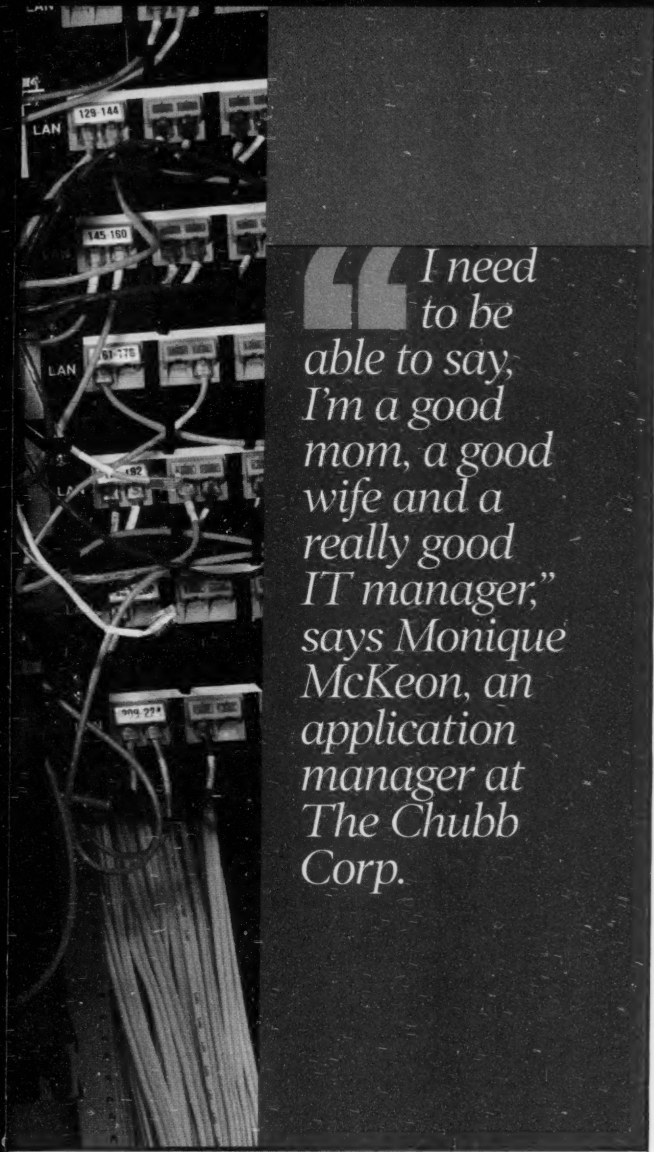
Making IT Work

Four women tell how they've survived and flourished in the IT culture.

By Mary Brandel

PHOTO BY PETER MURPHY

IN HER EARLY YEARS as an IT professional, Monique McKeon found that work/life balance was a struggle. Two of her early employers — a large software firm and a Big 6 consultancy — were somewhat unclear on the concept. At the consultancy, her travel schedule kept her out of town more than she was comfortable with. Then, when her first child was born, the bottom fell out. "I heard through the grapevine that one of the partners said I wasn't as committed as before I had children," she says. "That was the day I started looking for a job."



> “I need to be able to say, I’m a good mom, a good wife and a really good IT manager,” says Monique McKeon, an application manager at The Chubb Corp.

McKeon eventually found a welcoming culture at The Chubb Corp., where she is now an application manager, but other women in IT simply leave the industry. And fewer women are embarking on IT careers in the first place. According to the U.S. Bureau of Labor Statistics, the percentage of women in the IT profession today has dropped to 26.1% from 28.9% in 2001. And the future looks even worse: According to the National Center for Women and Information Technology (NCWIT), just 21% of computer science degrees go to women today, compared with 37% in 1985.

So, what’s gone wrong here? Some blame lingering stereotypes of geeky programmers working in isolation; others point at societal messages that discourage women from pursuing math- and science-oriented careers. Once on the job, the peer pressure to put in punishing hours — the “last jacket on the chair wins” mentality that pervades some IT shops — can also be a turn-off, especially for women, says Jenny Slade, communications director at the NCWIT.

And problems for women in IT sometimes extend beyond work/life balance, says Eileen Trauth, professor of information sciences and technology at Pennsylvania State University. “I’ve heard women talk about pinups, not being invited to lunch and the kinds of jokes people tell,” she says, emphasizing that these are anecdotes from her research, not problems that all women have encountered.

Computerworld talked with four successful women about their own experiences in the IT profession: what they’ve found difficult, what they’ve found fulfilling and what they think it takes to attract more women into the field.

◂ MONIQUE MCKEON

Application manager, The Chubb Corp.

MONIQUE MCKEON’S early career experience at the Big 6 consulting firm was off-putting, and her life at the software company wasn’t much better. “When I was interviewing, I asked, ‘How do I know I’m going to be measured and rewarded based on what I deliver, not the hours I clock?’ ” she says. “And I was baffled that they almost didn’t understand what I was asking. That should have clued me in that I wasn’t going to get the balance I was looking for.”

Responsibility for her children required a type of flexibility that was provided only grudgingly at best, so McKeon eventually left the software company.

At Chubb, however, the company’s encouragement of work/life balance is evident in the laptop it provided so she can run out the door early if necessary and pick up work again after dinner.

Still, one of the first things McKeon did when she arrived at Chubb was ask about the women’s group there. Within two years, she became chairwoman of the Chubb Partnership of Women, a grass-roots organization formed by two women (one an IT manager) six years ago to provide skills training and opportunities for networking. It now has 600 members, more than half of whom are in IT, she says.

McKeon feels she has never been denied an opportunity because of her gender, but she owes that to some tough choices. “You can’t have your cake and eat it, too,” she says. “It’s a physically demanding career, and you can’t be in two places at one time.”

There are times when she misses the pace of consulting, but “I’m at peace with that,” she says. “I need to be able to say, ‘I’m a good mom, a good wife and a really good IT manager.’ Could I be a [consulting firm] partner today? Yes, I could. Would I likely be married to the man I love? Probably not.”

Advice: You can balance an IT career with your home life, but it means making choices that are true to your priorities and understanding the trade-offs. “Having it all” is a fantasy.

KATY DICKINSON
Director of business process architecture, CTO organization and Sun Labs, Sun Microsystems Inc.

KATY DICKINSON has been in software engineering all her professional life, although you'd never know it from her degree: a bachelor of arts in English with a specialty in Shakespeare. She attributes her affinity for engineering to "literally growing up in an engineering R&D lab." Her father (a nuclear physicist) and an uncle (a mechanical engineer) started a business together when she was a child; together, they have more than 30 patents.

Dickinson joined Sun in 1984 and has worked there ever since, including five years as a single mom. Currently, she and her husband are raising two teenage children.

The population of women in software engineering is sparse and shrinking. According to the Bureau of Labor Statistics, in 2006, only 21.7% of computer software engineers were female, compared with 24.5% in 2001. (Other estimates are bleaker; see chart below.) And Dickinson is quick to note that women software engineers do feel the impact of being in the minority.

It's not unusual to be the only woman at a meeting, she says, and because of that, there's often a tendency to remain silent unless you think you have something really remarkable to say. "As one member of a small group, you feel you have no right to be mediocre," Dickinson says. "You're not just representing yourself; you're representing [females] with a capital F."

But Sun's culture is friendly to women, particularly in its flexibility about working from home, she says. And sometimes she is so well accepted that male co-workers seem to forget her gender. "I've been in meetings with executives, who, when I say I have to pick up the kids, have almost responded, 'Can't you have your wife do it?' " she recalls.

The flip side of that acceptance is peer pressure not to take advantage of the workplace flexibility that's available. And that doesn't always come from men, she says. "I've seen women try to out-boy the boys and be much less supportive" of the need to balance work and family, she says.

One of the most important steps toward success for a woman in IT, Dickinson says, is to find someone — preferably a mentor — who knows how to achieve that balance. In her role as manager of Sun's international mentoring program for engineers, Dickinson once found herself helping a female engineer who was struggling to express what she most wanted to learn from her mentor. "She finally said, 'I'm pregnant, and I don't know how to be a mom and an engineer, too,' " Dickinson recalls.

"It's something many people have to deal with," she says, but "you don't have to give up your love of engineering because you're a parent."

Advice: Join a networking group specifically geared for women IT professionals, to meet people in similar circumstances who can support one another.

Continued on page 34

A Nuanced View

Despite the statistics showing that women tend to shun computer science, women in the profession are not unhappy, according to recent research from Women in Technology International and Compel Ltd., a management consulting and research firm in Charlotte, N.C.

In fact, among 1,985 female IT professionals who responded to an online questionnaire in May, 75% said they would advise young women to start a career in a technology-related field. But the picture they painted was nuanced. Here are some of the study's findings:

75% said they would advise a young woman to start a career in a technology-related field.
73% said they are confident that they can influence their bosses.
52% said their organization offers a favorable climate for women.
48% said their views are not as acknowledged or welcomed as those of men.
46% said they have never had a mentor in their current companies.
44% said women receive fewer invitations to participate in and lead large initiatives.

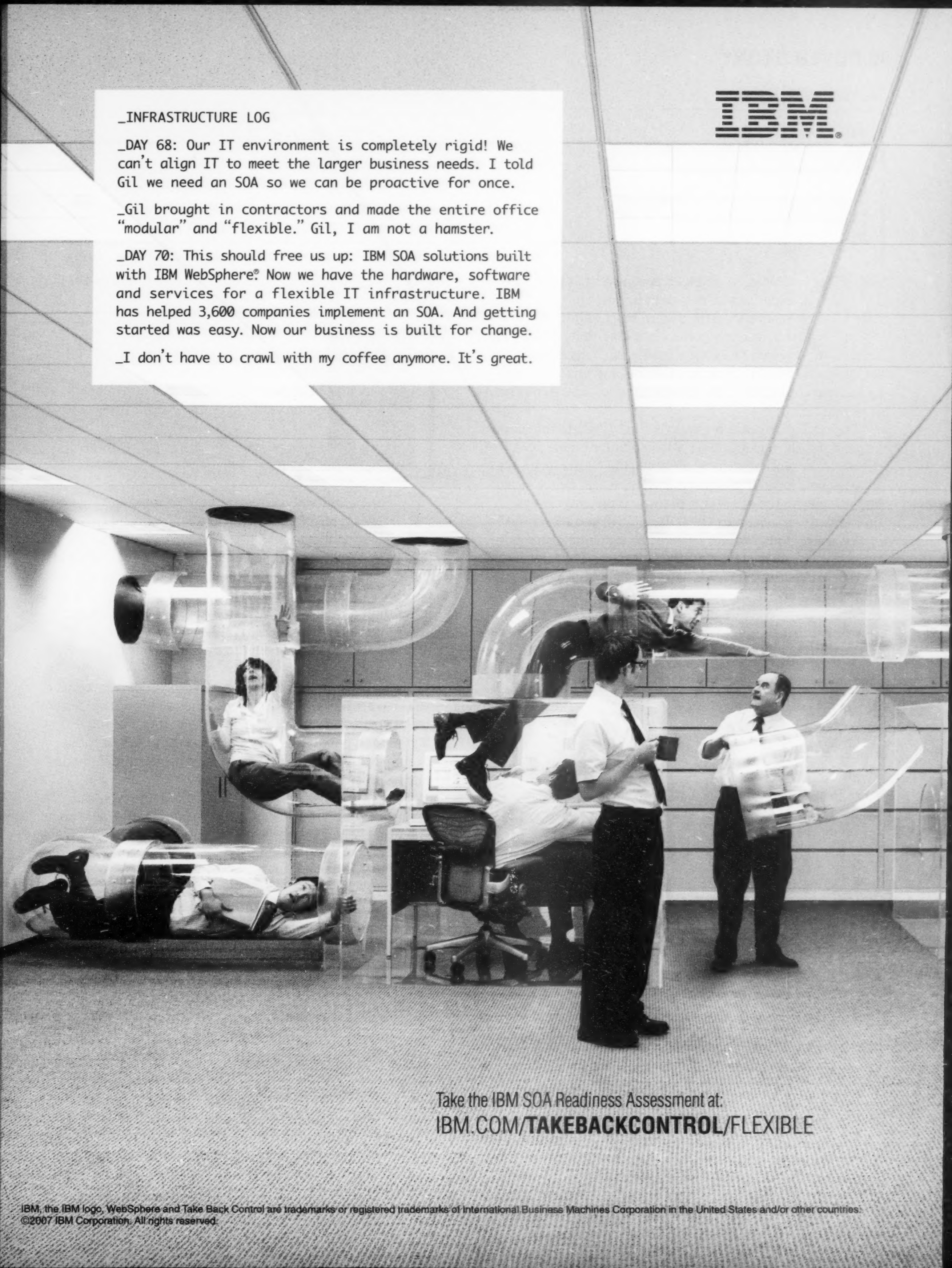
– Mary Brandel

Pay Gap Narrows but Persists

Job Title	% Females in Job	Average Female Salary	Average Male Salary
Senior software developer	9%	$81,000	$87,400
IT consultant	16%	$79,700	$80,200
IT project manager	32%	$78,000	$82,000
Software developer	13%	$70,500	$72,600
Computer/network support technician	12%	$38,500	$42,100

SOURCE: COLLECTED BY PAYSCALE INC. DURING 2006 AND 2007 FOR U.S. EMPLOYEES WITH FIVE TO SEVEN YEARS OF EXPERIENCE

> *"Within our own department, the glass ceiling appears to be broken.*
>
> **DONNA LAMBERTH,** IS MANAGER, L.L.BEAN INFORMATION SERVICES



_INFRASTRUCTURE LOG

_DAY 68: Our IT environment is completely rigid! We can't align IT to meet the larger business needs. I told Gil we need an SOA so we can be proactive for once.

_Gil brought in contractors and made the entire office "modular" and "flexible." Gil, I am not a hamster.

_DAY 70: This should free us up: IBM SOA solutions built with IBM WebSphere® Now we have the hardware, software and services for a flexible IT infrastructure. IBM has helped 3,600 companies implement an SOA. And getting started was easy. Now our business is built for change.

_I don't have to crawl with my coffee anymore. It's great.

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Continued from page 32

DONNA LAMBERTH
IS manager,
L.L.Bean Information Services

DONNA LAMBERTH has never felt discriminated against, even at her first job at an insurance firm, where most of her co-workers were men. But she's glad that, when she wanted to start a family, she was able to seek the advice of her boss at the time, a woman CIO who had a long commute, a very demanding job and a couple of young children.

"The advice she gave me was that in IT, where the work never stops, she had found ways to capitalize on the 24/7 nature of the work to gain flexibility in life," Lamberth says. "She felt comfortable heading out to the soccer field to watch her kids play in the afternoon, because there was always productive work she could be doing at 7:00 in the evening."

The secret to being an IT professional while also raising two children — or even working toward an MBA, as Lamberth is currently doing — is to understand how to make the best of the situation you're in, she says. "The work is 24/7, but the expectation can't be that you're working 24/7," she says.

At L.L.Bean, Lamberth says, women are definitely not in the minority. Her boss is a woman, and of the eight-member leadership team in her division, only two are men. "I sit in an awful lot of meetings that are exclusively women," she says. "Within our own department, the glass ceiling appears to be broken. It's easy enough to find female friends and mentors. Of places that I have worked, I would say that L.L.Bean appears to me to be the most neutral in terms of gender being a factor in a person's ability to get work done or advance in the organization."

Advice: Women in senior IT positions have grappled with issues similar to yours. Find a woman in a leadership IT role who can be your role model or mentor.

ROBIN BECK
CIO
University of Pennsylvania

ROBIN BECK has found that making IT a good place for women is less about establishing policies than it is about creating a culture where people can be honest and clear about their priorities. Beck feels that people work best when they're not stressed and worried, which makes it incumbent on individuals to be honest about the accommodations they need to make their lives work. "It's difficult at times for women to have the courage to say, 'I need help,' " she notes.

Such a culture didn't always exist for Beck. Sixteen years ago, she worked at several business units of General Electric Co. "They had wonderful benefits, but one business in particular was very hierarchical and male-dominated," she says. "The culture didn't support your taking advantage of those benefits."

When she came to the University of Pennsylvania, where the current balance of IT workers still favors men, she was excited about the prospect of working for a female boss. Now, she wants to help the younger women coming up the ranks. "Actually, I want to mentor and coach *all* the bright people in IT," she says.

As part of that coaching, she tells women to get past feeling defensive about the male-dominated IT world. Case in point: sports-centered small talk. "You go into a meeting, and it starts with a discussion of whatever sport was on TV that weekend, and instinctively I don't have much interest in that," Beck says. "But I remind myself all the time that it's just the icebreaker. You have to peel back the onion and see what's really going on."

Advice: Be very clear with your employer on your priorities and the schedule that works best for you. The same goes for your family. Ask them for help in making changes that will work better for you. For many women, it takes courage, personally and professionally, to tell people you need help. ■

Brandel is a Computerworld *contributing writer in Newton, Mass. Contact her at marybrandel@verizon.net.*

New Rules

In the course of a recent study on women in IT, Women in Technology International and Compel Ltd., a management consulting and research firm, spoke with 16 women CIOs about their career tracks. Because of the similarity among these women's experiences, the authors summarized seven "lessons learned" that apply to women who wish to further their careers in IT.

1. Expand your frame of reference. Get technology experience in a variety of areas, such as sales, consulting, customer service and operations.
2. Work for standouts. Work with name-brand companies or on important, high-impact projects.
3. Choose projects with weight. Don't work solely in support roles or the "people" aspects of projects. Work on at least one project that is operationally oriented.
4. Speak clearly and with integrity. On risky or troubled projects, break through political correctness and be forthright.
5. Soften the edges. Be hard-charging and results-oriented, but also develop people skills and a relationship orientation.
6. Raise your own flag. Publicize your team's successes.
7. Reflect. Assess your leadership qualities, style, values and what you want your career to look like.

– Mary Brandel

IBM

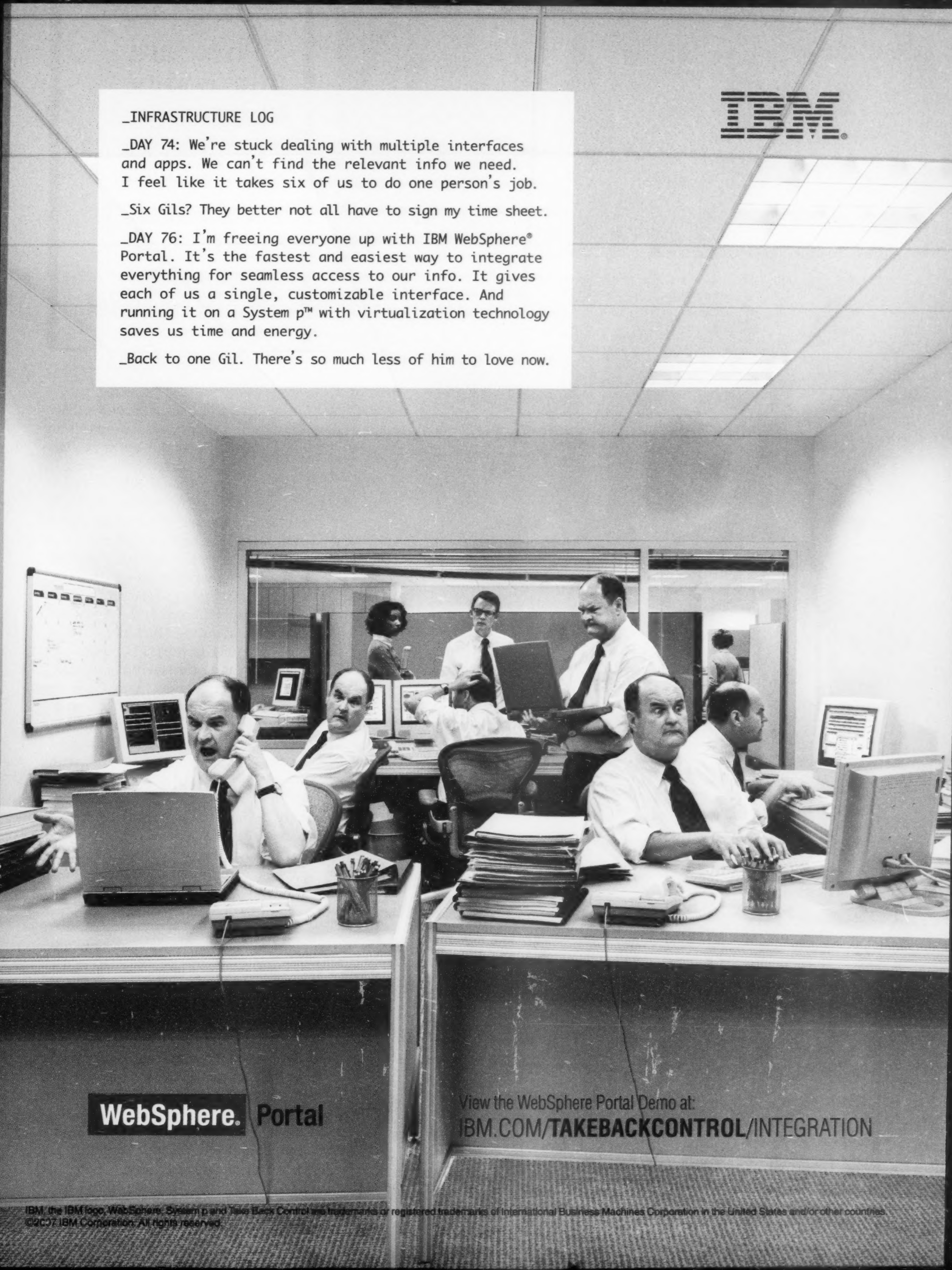
_INFRASTRUCTURE LOG

_DAY 74: We're stuck dealing with multiple interfaces and apps. We can't find the relevant info we need. I feel like it takes six of us to do one person's job.

_Six Gils? They better not all have to sign my time sheet.

_DAY 76: I'm freeing everyone up with IBM WebSphere® Portal. It's the fastest and easiest way to integrate everything for seamless access to our info. It gives each of us a single, customizable interface. And running it on a System p™ with virtualization technology saves us time and energy.

_Back to one Gil. There's so much less of him to love now.



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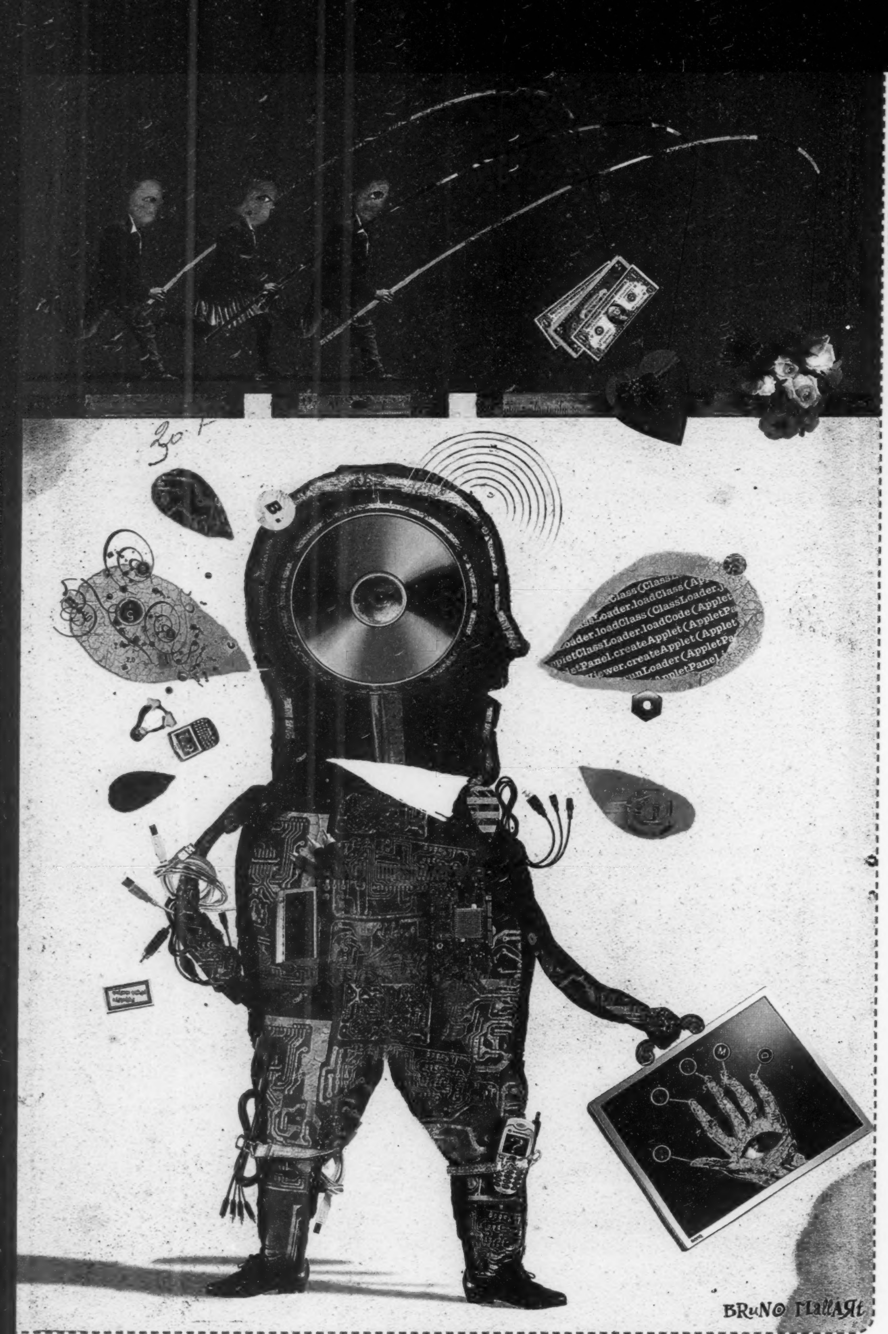

ILLUSTRATION BY BRUNO MALLART

Irresistible IT Skills

These are the competencies and combinations of expertise that will get you hired today. **By Mary Brandel**

THE TECHNOLOGY skills shortage that pundits were talking about a year ago is here. "Everything I see in Silicon Valley is completely contrary to the assumption that programmers are a dying breed and being offshored," says Kevin Scott, senior engineering manager at Google Inc. and a founding member of the professions and education boards at the Association for Computing Machinery. "From big companies to start-ups, companies are hiring as aggressively as possible."

Many recruiters say there are more open positions than they can fill, and according to Kate Kaiser, associate professor of IT at Marquette University in Milwaukee, students are getting snapped up before they graduate.

The market for IT talent is hot, but only if you have the right skills. If you want to be part of the wave, take a look at the areas where recruiters, curriculum developers and computer science professors say certain types of expertise will be in demand in the near future.

- **Machine learning.** As companies work to build software such as spam-filtering, collaborative-filtering and fraud-detection applications that seek patterns in jumbo-size data sets, there is more need for people with machine-learning expertise, or the ability to design and develop algorithms and techniques to improve a computer's performance. Demand is expanding for data mining, statistical modeling and data structure skills, among others. "Companies are snapping up these skills as fast as they can grab them," Scott says.

Continued on page 38

IBM

_INFRASTRUCTURE LOG

_DAY 25: Our ad hoc security solutions are not enough. We can't handle new threats. We're always playing catch-up. We're leaving ourselves vulnerable and exposed.

_Gil's had a security epiphany: high-powered lasers. They're everywhere. I keep zapping myself as I type.

_DAY 26: I'm taking back control with a security solution from IBM. Their security service experts can help us assess our needs. IBM Tivoli helps us monitor and respond to threats while *managing* access to our information. And the IBM System z™ server's encryption and multilevel security features are legendary.

Tivoli.

Take the IBM Security Solution Finder at:
IBM.COM/**TAKEBACKCONTROL**/SECURITY

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Continued from page 36

■ **Mobile applications.** The race to deliver content over mobile devices is akin to the wild days of the Internet in the '90s, says Sean Ebner, vice president of professional services at Spherion Pacific Enterprises LLC, a recruitment firm in Fort Lauderdale, Fla. With devices like BlackBerries and Treos becoming more important as business tools, companies need people who are adept at extending applications like ERP, procurement and expense approval systems to mobile devices, he says.

■ **Wireless networking.** With the proliferation of de facto wireless standards such as Wi-Fi, WiMax and Bluetooth, securing transmissions is top of mind for IT employers, says Neill Hopkins, vice president of skills development at the Computing Technology Industry Association. "Companies are concerned about how these [wireless technologies] all fit together and the security risks, which are much bigger than on wired networks," he says.

"If I were to hire a wireless specialist, I'd also want them to understand the security implications and build in controls from the front end," agrees Howard Schmidt, president of the Information Systems Security Association and former chief information security officer and chief security strategist at eBay Inc.

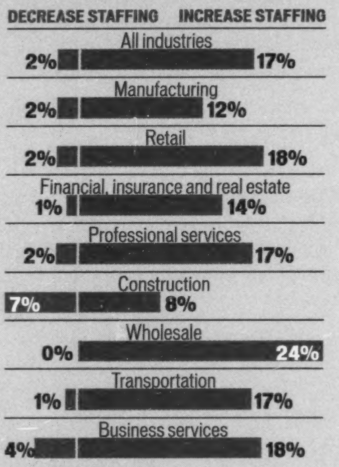
But don't venture into the marketplace with only a wireless certification, Hopkins warns. "No one gets hired as a wireless technician," he says. "You have to be a network administrator with a specialization in wireless so you know how wireless plays with the network."

■ **Human-computer interface.** There will be a growing demand for skills in designing user interfaces for Web and desktop applications. Thanks to companies like Apple Inc., "consumers are increasingly seeing well-designed products," Scott says. "Why shouldn't they demand that in every piece of software they use?"

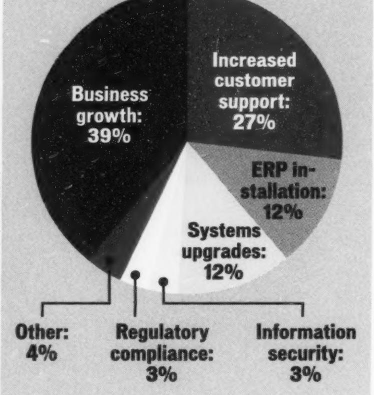
■ **Project management.** Project management is a perennial hot skill, but the new wrinkle is the need to demonstrate actual expertise in this arena. "Job reqs are coming in for 'true project managers,' not just people who have that title," says Grant Gordon, managing director at staffing firm Intronic Solutions Group in Overland Park, Kan.

Staffing Up

IT staffing intentions by industry in the third quarter of 2007



Which is the primary factor driving IT hiring?



Base: 1,400 CIOs at companies with more than 100 employees

SOURCE: ROBERT HALF TECHNOLOGY, MAY 2007

Employers want in-the-trenches experience, Gordon says. "The right candidates are fewer and farther between, and those that are there can be more picky on salaries and perks," he says.

■ **General networking.** No matter where you work in IT, you can't escape the network, so non-networking professionals need a basic understanding of networking concepts. At the very least, they should brush up on basics, such as TCP/IP, Ethernet and fiber optics, and have a working knowledge of distributed and networked computing.

"There's an acute need for people writing applications to be aware of how their applications use the network [and to] take advantage of the network in their application design," Scott says.

■ **Network convergence.** With more companies implementing voice over IP, there's a call for network administrators who understand LANs, WANs, voice technologies, the Internet and how they all converge. "When something needs to be fixed, companies don't want the network administrator to say, 'Oh, that's a phone problem,' and the phone guy to say, 'Call the networking guy,' " says Hopkins. "There's a huge demand for people who understand both worlds."

■ **Open-source programming.** There's been an uptick in employers interested in hiring open-source talent. "Some people thought the sun was setting on open source, but it's coming back in a big way, both at the operating system level and in application development," Ebner says. People with experience in Linux, Apache, MySQL and PHP, collectively referred to as LAMP, will find themselves in high demand, he says.

■ **Business intelligence.** Momentum is also building around BI, creating demand for people who know how to apply technologies from companies like Cognos Inc., Business Objects SA and Hyperion Solutions Corp. to the business. "Clients are making significant investments in business intelligence," Ebner says. "But they don't need pure technicians creating scripts and queries. To be a skilled data miner, you need hard-core functional knowledge of the business you're trying to dissect." People who can do both "are some of the hottest talent in the country right now," he adds.

■ **Embedded security.** The trend to integrate security into day-to-day operations has yielded a surge in employers looking for security skills and certifications in all IT job applicants. "In virtually every job description I've seen in the last six months, there's been some use of the word *security*," Schmidt says. "Whether the person is running the e-mail server or doing software development, it's becoming part of the job description."

Companies will still need security specialists and subject-matter experts, Schmidt says, but more and more, every IT person will need an understanding of the security ramifications of his area. ■

Brandel *is a* Computerworld *contributing writer in Newton, Mass. Contact her at marybrandel@verizon.net.*

IBM

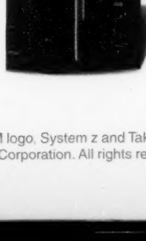
_INFRASTRUCTURE LOG

_DAY 78: Our energy costs are staggering! We're spending more to power and cool the hardware than we did to buy it in the first place.

_It's too darn hot. Gil moved the entire data center to the Arctic Circle. Gil, this commute is ridiculous.

_DAY 81: Here's something better: IBM energy management solutions. IBM services helped us identify and tackle our power and cooling inefficiencies. The IBM System z™ server's high utilization and unique design mean we're not feeding our old, power-hungry environment.

_Gil doesn't want to hear it. He says he's snow deaf.



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■ **QUICKSTUDY**

Representational State Transfer (REST)

It describes the principles that keep things moving smoothly on the Web.

By Russell Kay

Definition

Representational State Transfer (REST) is an architectural style of large-scale networked software that takes advantage of the technologies and protocols of the World Wide Web. REST describes how distributed data objects, or resources, can be defined and addressed, stressing the easy exchange of information and scalability.

IN 2000, Roy Fielding, one of the primary authors of the HTTP specification, wrote a doctoral dissertation titled *Architectural Styles and the Design of Network-based Software Architectures*. In it, he coined the term "Representational State Transfer" to describe the networking principles that characterize the World Wide Web.

In the broadest terms, REST outlines how to define and address sources of specific information, commonly known as resources. Resources are referred to individually with a universal resource identifier, such as the URL used for Web addresses. The term REST often describes any simple interface used to transmit domain-specific data over HTTP without the need for additional messaging layers or session tracking.

REST is an architectural style, not a standard or implementation specification. The largest REST application is the Web itself, characterized by the use of HTTP for transport and URLs as addressing mechanisms. REST can support any type of media, and XML is the most popular method used to transport and represent structured information. REST is used with HTML, XHTML, RSS and proprietary XML vocabularies.

Systems that follow Fielding's REST principles can be called RESTful, and some of REST's advocates call themselves RESTafarians. But REST isn't the only possible approach to building network applications, and there is some disagreement as to whether another might be preferable. (See story below.)

BASICS OF REST

REST involves several basic notions:

■ **Data elements.** Resources (such as data objects), resource identifiers (network addresses, URLs), and representations of resources (HTML documents, JPEG images) are accessed through a standardized interface such as HTTP.

■ **Components.** Origin servers, gateways, proxies and user agents communicate by transferring representations of resources through the interface, not by operating directly on the resources themselves. This is generally done using well-defined operations such as Get and Put.

■ **Connectors.** Clients, servers and caches, as well as tunnels such as Socks and SSL connections, present an abstract interface for communication, hiding the implementation details of communication mechanisms.

■ **Stateless interaction.** All requests made to connectors must contain all the information necessary to understand that request without depending on any previous request. This contrasts with the way many Web sites use cookies to maintain data between sessions. With REST, all messages must include all information necessary to understand the context of an interaction.

WHY REST?

Many developers find REST challenging because it requires them to rethink their problems in terms of manipulating addressable resources instead of calling another routine to do something with that data. With RESTful design, Web services can be seen as simply a means of publishing information, components and processes to make them accessible to other users and machine processes. For example, the Atom Publishing Protocol, a RESTful application widely used for blogs, simplifies the process of publishing information and makes processes available to others so they can interact with that information. In general, REST requires less client-side software than do other approaches, because a single, standard browser can access any application and data resource. ■

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Kay is a Computerworld *contributing writer in Worcester, Mass. Contact him at russkay@charter.net.*

REST OR RPC?

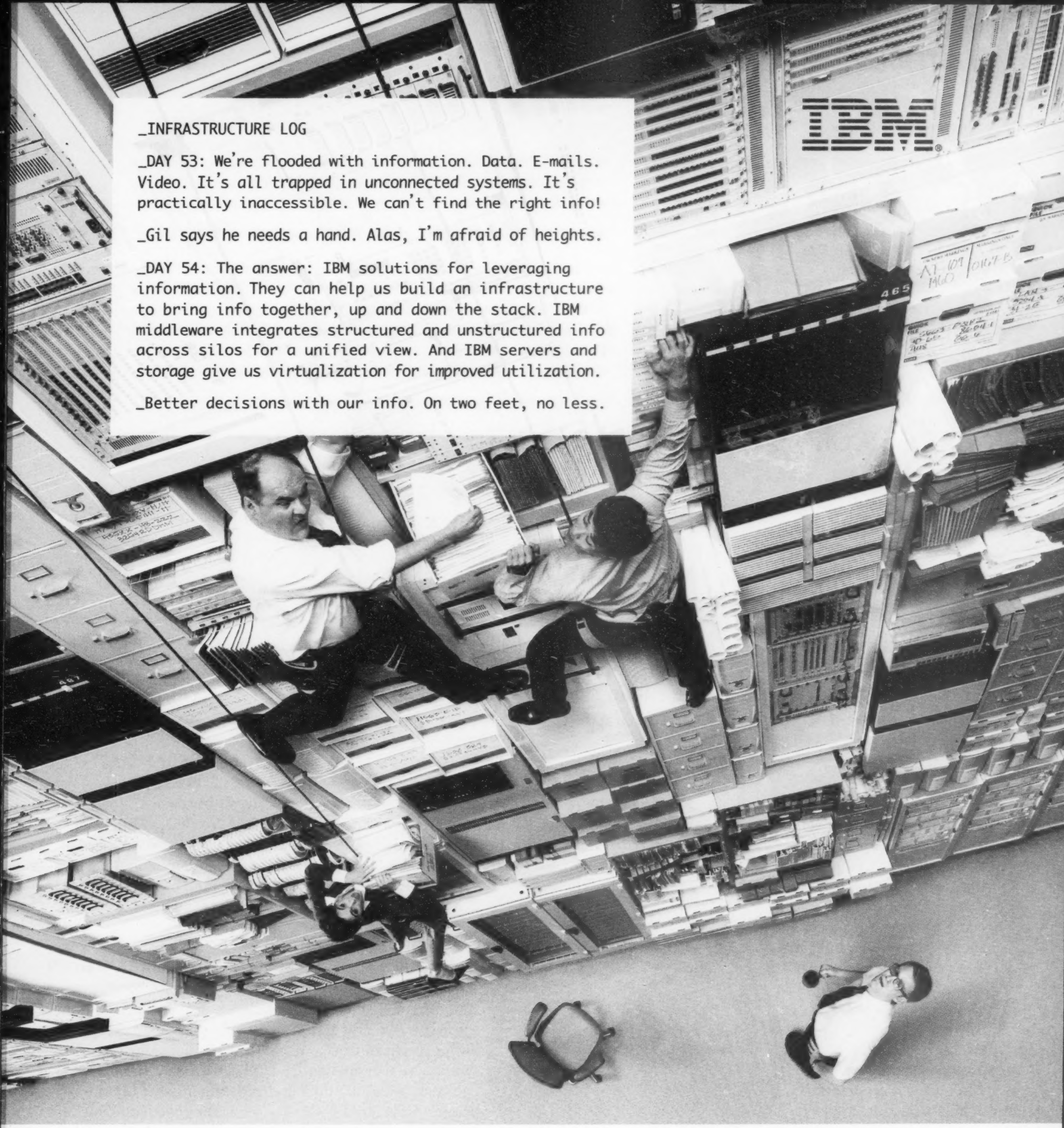
Many developers prefer an approach using remote procedure calls rather than REST. With RPC, a program calls a subroutine or procedure located in some other address space, usually on another computer on the Web or network.

RPC applications emphasize the diversity of protocols and specialized operations – what we might call verbs. REST applications emphasize the diversity of data resources – what we might call nouns.

With an RPC application, a client must know about an object's identity and data type to locate it and communicate with it. A REST application provides addresses for every useful data object and uses those objects as the targets of operations.

Typically, RESTful design results in the need for fewer defined data types on the network than with an RPC-based application, but at the price of a greater number of resource identifiers.

– RUSSELL KAY



_INFRASTRUCTURE LOG

_DAY 53: We're flooded with information. Data. E-mails. Video. It's all trapped in unconnected systems. It's practically inaccessible. We can't find the right info!

_Gil says he needs a hand. Alas, I'm afraid of heights.

_DAY 54: The answer: IBM solutions for leveraging information. They can help us build an infrastructure to bring info together, up and down the stack. IBM middleware integrates structured and unstructured info across silos for a unified view. And IBM servers and storage give us virtualization for improved utilization.

_Better decisions with our info. On two feet, no less.

IBM

Information Management

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Bright Spots IN THE Blogosphere

Some geeky blogs you'll want to check out.

THE BUZZ around the water cooler ain't what it used to be. If you want to understand what your geekier cohorts are talking about, it may be time to start sharing some of their reading material. And we don't mean what's on their nightstands. The staff at *Computerworld.com* has done the legwork for you. Here are some of our favorite geeky blog sites.

■ HACK A DAY

www.hackaday.com

Want to learn how to add a USB to a cheap Linux router? Create a snake robot? How about an Xbox 360 laptop? Hack a Day has these basement projects and many more. This site is for the serious techie. At the same time, it's good for a laugh or a new hobby.

■ LIFEHACKER

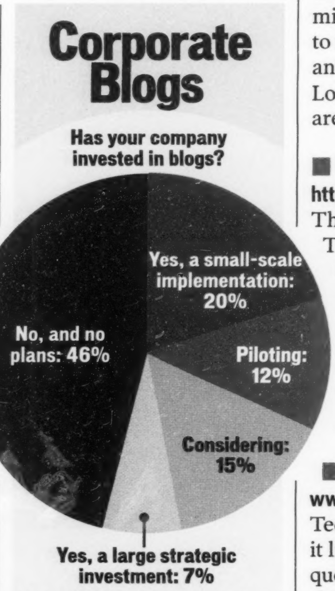
www.lifehacker.com

Lifehacker's motto says it all: "Don't live to geek; geek to live." This blog offers timesavers of just about every stripe, from Firefox shortcuts to tips from the "Getting Things Done" faithful.

■ IT TOOLBOX BLOGS

http://blogs.ittoolbox.com

IT Toolbox has a number of "in the trenches" IT pros who talk about technology and management issues. There are specialist blogs dealing with security, databases and project management, among other subjects. It's a versatile site.



Base: 275 IT decision-makers familiar with blogs at U.S. companies with 500 or more employees

SOURCE: FORRESTER RESEARCH INC., JUNE 2007

■ DANGER ROOM

http://blog.wired.com/defense

Wired's military and defense blog covers some of the coolest and scariest military technologies — not to mention scandals, debates and other military news. Lots of video and imagery are included.

■ O'REILLY RADAR

http://radar.oreilly.com

This is where you can read Tim O'Reilly (founder of O'Reilly Publishing) and others' discussions of networking, programming, open source, intellectual property, politics, Web 2.0 and emerging technology.

■ TECHDIRT

www.techdirt.com

Techdirt is a newsy, "tell it like it is" blog that frequently features debates on the hot issues in the Internet and computer fields. Scandals are a specialty. Simplicity is its hallmark.

■ FEEDSTER

www.feedster.com/feedpapers/Technology

Like drinking from a hose. This Web page brings together blog sites about technology, sports, celebrity gossip, food, personal experiences — you name it. It also offers a blog search feature that allows you to search on words or phrases, and it has a very cool RSS aggregator for news feeds. It also injects some great humor into technology news. An all-around great site.

■ ROUGH TYPE

www.roughtype.com

Nick Carr, of *Does IT Matter?* fame, has a sharp-minded blog that discusses all manner of issues and trends relating to technology. Always an entertaining read, Rough Type often locks horns with companies, people, technologies and policies that rub Carr the wrong way.

■ THE UNOFFICIAL APPLE WEBLOG

www.tuaw.com

TUAW offers a collection of independent bloggers — that is, independent but not undecided or uninformed. It's a good source for Apple-related news.

■ ELLIOTT BACK'S BLOG

http://elliottback.com/wp

This self-professed computer scientist posts everything from his opinions on why XML stinks to the *Titanic*'s passenger list. This site is well composed, offering great tips on topics such as increasing system performance and blocking spam.

■ 4SYSOPS

http://4sysops.com

This is a very useful site with well-written tips and how-tos for Windows administrators. ■

■ SECURITY MANAGER'S JOURNAL | C.J. KELLY

Ask for Blind Faith And Get Blindsided

A **communication breakdown** leads to a breakdown of **team spirit** as well. How do you go about **getting it back?**

Trouble Ticket

AT ISSUE: A lack of communication leads staffers to doubt their manager's technical abilities.

ACTION PLAN: Recognize that informed trust will see the team through the rough patches better than blind trust.

I WAS SHOCKED to discover recently that my staff had lost confidence in my technical abilities. I've always prided myself on being able to put technical know-how to work even as I manage my staff.

Here's what happened. We are in the midst of a network restructuring project as we introduce new security appliances. My part, besides running the project, is configuring the appliances. My staff's part is to decide on an IP addressing scheme and how to implement the changes. We had several team meetings, went over the plans, picked a cutover date and began.

Two weeks before the cutover, I found out that one of my staff members had consulted several network and security engineers, who prepared a new plan calling for a phased approach and a parallel test network. Good idea.

Otherwise, this new plan had exactly the same configurations that we were working on. That seemed odd, and when I pressed him, my staffer revealed that he had run our ideas by the state's chief network engineer. Unknown to my staff, I had been working closely with that department.

Good idea or not, I was upset that my staffer had gone around me. The message I heard: "I don't have faith that you possess the technical skills to see this project through properly."

My emotions are pretty transparent, so he asked whether I was mad. "I am upset that you didn't trust me to do my part," I said. "And I need to know why."

He said that since none of the team had experience in security, they were concerned about supporting the appliances. "What happens when you aren't around and something goes wrong?" he asked. I responded, "The same thing that happens when you aren't around; we deal with it."

But I knew I had to say more if I wanted to restore the spirit of teamwork. So I pressed ahead. "I would not have done to you what you did to me," I said. "Teams discuss issues, even negative ones. You can't be afraid to bring up things that may hurt someone's feelings. It hurt more that you went behind my back and cast doubt on my skills. Tell me, when you or other members of the team have managed projects, have I been critical? Have I cast doubt on your skills? Have I complained that the project took longer than I expected? Or have I encouraged you and praised your efforts?"

■ It was clear that I had not shared enough detail with my team.

If my goal was to shame him, I achieved it. But that wasn't what I was after, so I explained that even though I had been offended by his actions, this was a learning opportunity for me. It was clear that I had not shared enough detail with my team or given them enough time to learn about the new technologies. I had expected them to trust me and stick to the schedule. But I had sought their trust without giving them a lot of information.

My excuse is that I figured they had enough on their hands without worrying about what I was up to. But as a result, they didn't know just how much I know about what I'm doing, and they didn't know who else I was consulting with. You're asking a lot of technical staffers if you expect them to trust you with a production network. They felt like I was asking them to jump off a cliff blindfolded.

So, what do I get out of this learning opportunity? We will revisit the ground rules for teamwork. We do not advocate blind trust; we advocate informed trust. If I have not properly informed the staff, I am to blame for any resulting confusion or doubt. If I need to take things more slowly with the project and teach while I'm implementing, then so be it. I need to find the time and bring the staff along with me. Finding the time is always the problem, but this situation opened my eyes to how important it is to do that. ■

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JOIN IN

To join in the discussions about security, go to **computerworld.com/blogs/security**

This week's journal is written by a real security manager, **"C.J. Kelly,"** *whose name and employer have been disguised for obvious reasons. Contact her at mscjkelly@yahoo.com.*

OPINION

Paul Glen

The Delegation Boomerang

HAVE YOU ever noticed that delegation doesn't always work? Have you ever given one of your subordinates a task and a few days later found it back on your to-do list? I call this the delegation boomerang effect.

When this happens, most managers like to think of themselves as victims. I often hear something like, "My people just aren't up to the job, so I have to do it myself. Woe is me."

But this is silly. Usually, it's not that the people can't do the job, but that the manager *doesn't want* them to do the job. The manager wants the job for himself, no matter how much he protests to the contrary.

The boomerang effect happens because managers get stymied by the emotional obstacles to giving away responsibility and authority. While they tell the subordinates that they want to delegate decision-making power or cool technical work, they really want it for themselves and find ways to take it back. Sometimes the subordinates give it back because they don't want the responsibility, the work or the risk of accepting blame. But sometimes it happens because managers and subordinates have differing assumptions about what has been delegated, the degree of empowerment provided and the level of individual initiative expected.

The problems with this scenario are fairly obvious. A big part of the point of management is to make a group of people productive by enabling parallel activity, but when delegation fails, work becomes single-threaded. This situation is not just a problem for managers, but also for subordinates. Generally, technical people want to accept responsibility, take on tasks, learn and grow. But when delegation fails, subordinates see no opportunity to grow. They lose initiative and become dependent.

So, how does this happen? I've seen three general modalities.

1. Status reporting becomes decision-making. Most commonly, a subordinate starts out offering a status report. Next thing you know, it seems the boss has a decision to make, effectively taking back responsibility. It happens either because the subordinate asks for it or because the boss feels uncomfortable accepting information without taking some sort of action. But when this happens, the boss is subliminally telling the subordinate that he expects a low level of initiative.

2. Authority reverts to recommendation. When you've delegated decision-making authority, sometimes subordinates come back with recommendations and analysis rather than decisions. Here the subordinate is asking to be relieved of authority.

3. Micromanagement discourages initiative. Here the boss becomes so intrusive in monitoring progress that the subordinate assumes that the boss doesn't really want to delegate after all and lets him take back control.

So, how do you make delegated tasks stay where you put them?

Usually, it's not that the people can't do the job, but that the manager *doesn't want* them to do the job.

1. Know yourself. Try to be aware of how you feel about delegation. If you are ambivalent about it, reflect on why and whether you can reliably delegate this task.

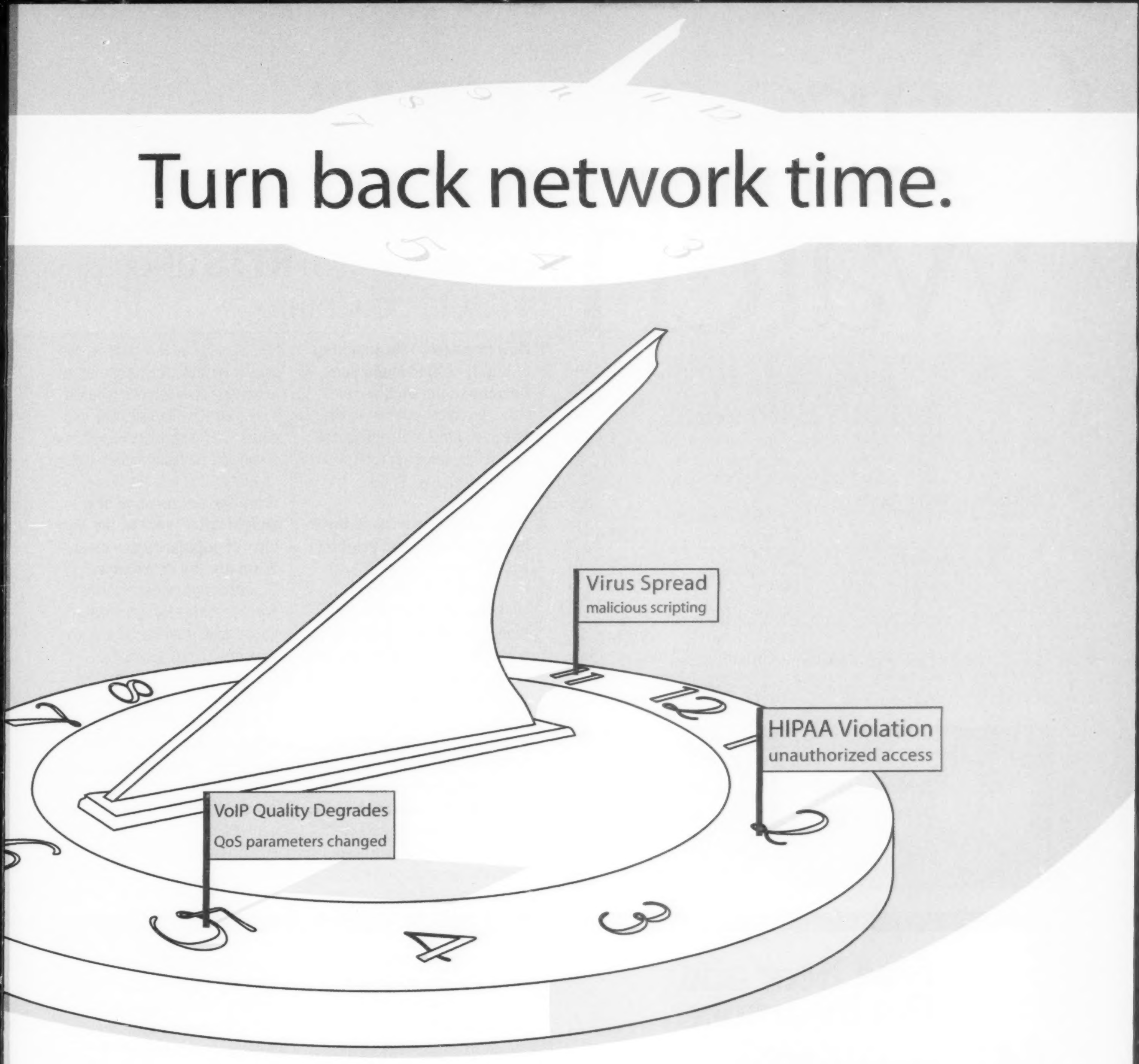
2. Don't catch the boomerang. When someone offers you a status report, rather than telling him what to do, ask him what he plans to do. When he offers recommendations, thank him for the update and ask him what he plans to do. And resist the temptation to micromanage.

3. Clarify the level of initiative you expect when you delegate a task. Explain whether you are delegating authority or just a task. Ask whether the person is comfortable accepting this degree of delegation. Make sure that you both agree on expectations.

4. Say it again. When someone tries to give you back a task, reiterate the level of initiative you described at the outset. Remind the person of your initial agreement.

With a bit of self-awareness and discipline, you can make delegation work. You need not be a victim of the delegation boomerang effect. ■

Paul Glen *is the founder of the GeekLeaders.com Web community and author of the award-winning book* Leading Geeks: How to Manage and Lead People Who Deliver Technology *(Jossey-Bass, 2003). Contact him at info@paulglen.com.*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Career Watch

PAGE COMPILED BY JAMIE ECKLE.

MAYBE MONEY DOES BUY HAPPINESS

Buried in Dice's 2006 IT salary report are the following figures correlating job satisfaction with salary. There's no way to know, though, which came first, the big bucks or the happiness.

NUMBER OF RESPONDENTS WHO SAID THEY ARE . . .		THEIR AVERAGE SALARY
Very satisfied	14%	$91,234
Somewhat satisfied	39%	$80,046
Neither satisfied nor dissatisfied	14%	$70,497
Somewhat dissatisfied	21%	$62,845
Very dissatisfied	11%	$50,180

Note: Percentages do not add up to 100% because of rounding.

SOURCE: ONLINE SURVEY OF 19,182 REGISTERED DICE.COM JOB SEEKERS AND VISITORS, AUG. 2 TO NOV. 30, 2006

QUOTE TO NOTE

> In today's world, if you don't like the unknown, you're a fish that doesn't like water.

[illegible]

Q&A

Billy Hayduk

The president and CEO of software quality assurance firm **RTTS** discusses IT staff poaching.

How prevalent has poaching of highly skilled employees become in the tech sector? Very. The perceived shortage has caused a carousel of experienced tech people going from one place to another.

What are companies doing to keep their best and brightest? Companies are trying to make the workforce more employee-friendly and flexible. Work schedules have become more suited to employees' lifestyles, and the best employees are having their pick of the tasks at hand.

Are employees more likely to be offered great benefits and other positive retention methods, or to be required to sign a noncompete clause? Upfront, they are likely to be required to sign a noncompete. Once they are employees, if one was not already in place, signing one leaves a bad taste in employees' mouths. Increased benefits, including bonuses, flex hours and work-at-home schedules, are being added quickly.

From the perspective of a sought-after worker, the benefits of popularity are clear. What are the drawbacks? Drawbacks are significant if the poachee is attempting to break a noncompete. Bad blood between the current employer and the poacher – in our case, our client – spills over to the employee. Also, IT is a small community, and word can spread that someone has minimal loyalty. The poachee risks long-term damage to their reputation for perceived short-term financial and benefits gain. Some find that the grass is not always greener.

– JAMIE ECKLE

Free Beer and Pet Insurance

MANY are the ways companies try to entice and retain employees. Job benefits can take many forms, and the more competitive the job market, the more companies will try to distinguish themselves with creative benefits. Sure, everyone wants health insurance, and just about every good-size company offers it in some form. But how many are providing health insurance for pets? If you're susceptible to the lure of bennies, you might be interested in working for one of these companies, chosen somewhat randomly from the ranks of *Computerworld*'s Best Places to Work in IT for 2007:

- **TUITION REIMBURSEMENT:** The University of Miami doesn't limit the annual tuition remission benefit amount for employees, and each dependent may accrue as much as $31,288 in tuition remission per year.
- **EMPLOYEE RECOGNITION:** General Mills has organized IT employee recognition, which ranges from public peer recognition to an annual ceremony to hand out stock and cash awards.
- **FLEXTIME:** IT workers at SAS Institute are assured comp time if they end up working on a problem through the night when they're on call. Other areas of flexibility accommodate personal pursuits, family emergencies or just the desire to exercise for more than an hour at lunchtime.
- **PAID SABBATICALS:** Since 2001, American Century Investments has allowed anyone with over seven years of service to take a month of paid time off, no questions asked. You become eligible again after five years.
- **RECREATION:** At L.L.Bean, you can use a hefty discount on all types of outdoor gear and equipment and then, for a nominal fee (and if you win a company lottery), head to a company-owned wilderness camp on Maine's Rangeley Lake.
- **COLLABORATE WITH THE BEST:** MIT's IT workers can learn from and collaborate with IT research groups and academic departments on campus. One example: Tim Berners-Lee recently spoke at an IT department organizational meeting.
- **FREE BEER:** If it's free beer that interests you, you probably shouldn't work at a bank. But Anheuser-Busch gives eligible employees two free cases of beer (or its nonalcoholic products) per month.

– JAMIE ECKLE

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The successful candidate must have

- a minimum of 9 years experience with the design, implementation and operational management of messaging services, including IMAP and Microsoft Exchange;
- At least 5 years of supervisory experience in managing technical staff, projects, and departmental budgets;
- a thorough understanding of collaboration and content management systems, including supporting infrastructures such as directories, authentication and authorization technologies;
- the ability to stay abreast of developments in the emerging area of delivering services to a wide variety of devices;
- a thorough understanding of enterprise application performance analysis and tuning as well as application security architectures and implementations;
- solid experience with applications running in Linux, Solaris, and Windows server environments.

In addition, the successful candidate must demonstrate:

- excellent interpersonal and communication skills and the ability to collaborate with managers, staff, and customers from different levels of organizations and with varied levels of technical understanding;
- ability to stay apprised of new collaborative technologies and the IT industry;
- exceptional problem solving and analytical skills;
- a proven track record of developing and mentoring staff

The successful candidate should have:

- Experience with the technical design of enterprise-class messaging, content systems, and collaboration services is highly desirable.
- The successful candidate is expected to develop and maintain positive working relationships with (and provide service to) individuals from diverse backgrounds.

Education: Bachelor's Degree

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Why We Love Users

This payroll guy is prone to panicking when anything goes even slightly wrong with his computer. And when he panics, he starts calling his favorite IT support pilot fish and then searches the building if he can't reach fish by phone or instant message. That's why it's just a surprise, not a complete shock, when fish hears the door to the restroom burst open while he's inside, followed by the payroll guy's relieved voice: "Oh, there you are. I've got a problem; come fix it." Fish: "I'm a little busy right now, and how the heck did you know it was me in here?" Payroll guy: "I recognized your shoes."

Why Users Love Us

User pilot fish has problems with a photocopier and – following procedure – e-mails the IT administrator: "Hi, tried to call but you were on the phone. Can you please either have a look at our copier or log a service call? It has a maintenance message 'DK error.' I have turned it off and back on again, but it's still not working." And a response comes back promptly: "Why not call the vendor yourself, as opposed to calling me?"

Feeling the Love All Around

NetWare admin pilot fish receives a trouble ticket from the help desk and now can't decide whether to be more irritated at the foolish user or at the clueless help desk worker who didn't spot a phishing expedition. The problem: "User reports that she received an e-mail at home stating that she had tried to log in with an incorrect password too many times to a banking system that she wasn't even a client of, and so that banking account ID had been locked. Could this be why she had trouble logging into her NetWare account at work this morning?"

Cleanliness Is Next to . . . Impossible

Departmental server suddenly begins to go down frequently. The crashes are sporadic, but they always happen on weeknights – between 1 a.m. and 2 a.m. "After a few weeks of debugging, two of us started coming in at night to sit in the small room where it was kept, to watch the server between midnight and 2:30," says a diligent pilot fish. "The second night, we surprised the cleaning woman when she opened the door. She nodded to us as she wheeled in the vacuum cleaner, and we watched as she unplugged the server from the UPS and plugged in her vacuum. I was the diplomatic one and kindly explained to her why not to do this. She looked at me and shook her head, and the room hasn't been vacuumed since."

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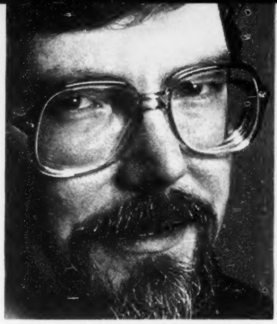
■ FRANKLY SPEAKING

Frank Hayes

Not So Unique



DEPARTMENT OF CORRECTIONS: Recently in this column, I suggested that it's a bad idea to use Social Security numbers as unique personal identification numbers "just because they're available and, well, they're unique IDs."

I was wrong — way, *waaay* wrong. As several readers wrote to point out, a Social Security number is far from unique.

It turns out that millions of people have been assigned more than one SSN — more than 4 million by 1973, according to one government report, and probably many more today.

How does that happen? The Social Security Administration doesn't reuse SSNs and doesn't like changing anyone's SSN. But the agency will sometimes do it in cases of domestic violence, identity theft, and religious or cultural objections (for example, numbers containing "666" are offensive to some people). A new number can even be assigned if members of the same family have sequential SSNs, and it's causing problems.

In those cases, one person can have two different SSNs as identifiers in a database. So much for uniqueness.

There's one other situation where the Social Security Administration issues a replacement number: when more than one person has been assigned, or is using, the same SSN. The most infamous case of that was 078-05-1120, which was used on a "sample" Social Security card by a wallet manufacturer. At one point, more than 5,700 people were using that number as their SSN.

And that doesn't include cases where a fraudster intentionally uses a specific person's SSN to fake that person's identity. Or where a prankster wants to cause problems for a victim. Or where someone wants to protect his own SSN, so he just pulls a number out of the air when asked to fill in a number on a form.

In other words, it's not unique, and it's not even a very good identifier.

But we're still using SSNs as if they were both unique and good identifiers, aren't we?

■ We use SSNs even though they're easy to fake, easy to imitate and easy to steal.

We use SSNs even though they're easy to fake, easy to imitate and easy to steal. We treat them as proof of identification even though they have zero value for authentication. And at the same time, we fail to keep them confidential, splashing them all over reports that really don't need them — except, of course, as unique identifiers.

Which is exactly what they aren't.

We can't even straighten out this mess ourselves, because so many industries treat the SSN as a unique ID that it has become required data. Even though we know it shouldn't be used that way — that it really won't work that way — we can't get rid of it.

What we *can* do is box it in.

We can remove SSNs from printed reports. Long lists of SSNs aren't actually useful to our users — just to identity thieves.

We can obscure the display of SSNs on-screen. The last four digits are roughly as useful as the whole number, and blanking out the rest reminds users that SSNs should be kept confidential.

We can make sure there's a real unique customer ID in every database — even if it's never displayed to users.

We can build logic that requires more identifiers than just an SSN before a customer's information is displayed.

In short, we can filter out most of the routine overuses and misuses of SSNs that currently riddle our systems and business processes.

Why should we? Well, there's the logical reason: Since an SSN isn't a unique identifier, we shouldn't act as if it is.

Then there's the practical reason: The screws are turning on SSN use. Slowly but surely, laws and regulations are changing to restrict how SSNs can be used and to dictate how they must be protected.

If we start now, we won't need a Y2k-style crash effort to solve the "SSN problem" when the new rules hit our businesses — just a few tweaks.

For once, we can be ahead of the game.

And wouldn't *that* be unique. ■

Frank Hayes *is Computerworld's senior news columnist. Contact him at frank_hayes@computerworld.com.*

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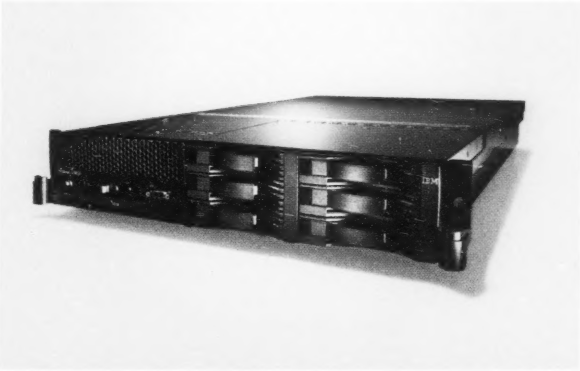

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2GB DDR II 667MHz memory standard, up to 64GB DDR II 667MHz memory via 16 DIMM slots

IBM Director and Predictive Failure Analysis monitor and help identify problems on processors, memory, hard disk drives, voltage regulator modules, and power supplies

Up to 1.8TB hot-swap SAS or 3.0TB hot-swap SATA

Limited warranty: 3 years on-site[3]

IBM SYSTEM x3105 EXPRESS

AMD Opteron™ or AMD Athlon™ processor featuring AMD Direct Connect Architecture

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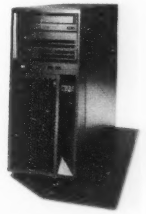
1.0TB SATA internal storage maximum

Limited warranty: 1 year on-site[3]



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AMD 64 Opteron™

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